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ADDRESSES.

THE PRESIDENT'S ADDRESS.

Delivered at the Annual Meeting of the Congress of American Physicians and Surgeons, Washington, D. C., September 23-25, 1891.

BY CLAUDIUS H. MASTIN, M.D.,

OF MOBILE, ALA.

Fellows of the American Surgical Association:

At your last meeting, in May, 1890, you selected me to be your presiding officer at this session; a session of especial interest, because it is the occasion when the several special Associations conjointly assemble to constitute the Congress of American Physicians and Surgeons.

Thoroughly appreciating the importance of the trust, and acknowledging the very great honor you have done me, I embrace the first opportunity which has presented, to thank you for this generous manifestation of your confidence and esteem.

It now becomes my pleasing duty to welcome you, together with our distinguished *confrères* from abroad who have honored us with their presence, to this, the beautiful capital city of this great, growing and prosperous Republic; a city surpassing in beauty and rivaling in grandeur the older and more favored capitals of the Old World; noted, both at home and abroad, for its intellectual and scientific advances, it is to become in the not distant future the centre of the science, the literature and the art of the Western hemisphere, as it is, even now, the political pivot around which revolve more than sixty millions of freemen! It is here that the Congress of American Physicians and Surgeons holds its triennial sessions, and it is the home of this Association. It is to this and to these that I bid you a thrice hearty welcome!

Since the organization of this Association, a body having for its object the advancement of the science and the art of surgery, a decade has passed away, and with the opening of this session a new epoch in the history of the American Surgical Association begins. It therefore is a fitting time to take a retrospective view of our history, to congratulate ourselves upon the auspicious present, and linger for a moment in the contemplation of the future. This I conceive to be a more appropriate theme for the occasion, than for me to weary your patience with a scientific dissertation—especially so, since the efficient committee charged with the preparation of the programme, has laid before you a feast rich in this particular.

It was in May, 1879, during the meeting of the American Medical Association, then in session at Atlanta, Ga., that the founder of this Association called around him a few selected friends, and disclosed to them a plan—which for many years had been a cherished object of his ambition—that of organizing an Association which should bear a National name, and embody in one harmonious whole the surgical talent, experience and wisdom of this great country. The question was pertinently asked, "What need is there of such an organization, since the country is full of all kinds of medical societies?" It was argued that the Surgical Section of the American Medical Association offered all the requirements necessary, and that the organization of a special Association, having for its object the advancement of the science and art of surgery, was not called for, and would be looked upon as having for its purpose only the injury of the old Association, striking, as it were, a direct blow at the Surgical Section.

With the far-seeing wisdom characteristic of the man, he thought differently, and believed the effect would be directly the opposite. He believed and said that the time had come in the history of medical and surgical affairs in America, when such an organization was a necessity, and should be created. He disclaimed then, as we do now, any opposition whatever to the old Association, and he asserted that it was impossible for any new organization to be in the least detrimental to it.

From the day on which the old Association was organized, he had been an active and influential member; once its President; often a contributor to its volume of Transactions; governed by its Code of Ethics. He remained true and loyal to all its requirements, as evidenced by the fact that when, on his death-bed, he was asked by a friend "what message he desired to send to the American Medical Association?" he replied, "Give them my love." Also the very last paper he ever wrote was being read in that Associa-

tion, during its session of 1884, on the same day that he died.

It is my honest conviction that neither our illustrious founder, nor any Fellow of this Association, has ever entertained any sentiments of opposition to the old Association. On the contrary, as American physicians and surgeons, we feel an honest pride in the work that she has done, and we are the last who would obstruct the progress of an Association which is so necessary to the professional interests of the country at large. We are free to admit, however, that we know the time has come in the history of medical affairs in this country, when the special branches of the profession must be separately recognized. Not that they should be divided into departments having no reliance one upon another, but as integral parts of a great and undivided profession, they should be so organized as to stand "distinct as the billows, yet one as the sea." The Congress of American Physicians and Surgeons is simply a development of this principle.

But he was building even better than he knew, and now, the ten years which have passed so rapidly away have answered the question, "What need is there of such an organization?" The first regular meeting of this Association held for the transaction of scientific and practical work, took place at Coney Island, in the State of New York, in the September of 1881; a meeting which was attended by a very small number of its Fellows, yet the character of the work which was done was useful, and laid the foundation of the triumphant success which has since been attained.

Nomadic in its beginning, the next meeting was in the city of Philadelphia, on the 31st day of May and the 1st and 2d days of June, in the year 1882. At this session a fellowship of only twenty-five were present, but the work was practical, full of zeal, and showed that the Association was to become, in the not distant future, an altar upon which would annually be laid valuable contributions to surgical science, and the world said, even at that time, its membership were destined soon to become earnest and zealous laborers in the interest of human progress and human suffering.

The third session was called together in the city of Cincinnati, on the 31st of May, 1883, and forty Fellows, all told, constituted its full strength. Its first volume of Transactions, which was published after that meeting, attests the amount and the value of the work which was accomplished. Everything then seemed to foreshadow a bright future, and nothing transpired to dim the occasion, save the absolute refusal of our beloved founder, and President, to accept a re-election to office.

That great man, the Nestor of modern American surgery, the founder and the cherished idol of this Association, Samuel David Gross, standing without peer and without reproach, held that he had no preëmption right to office, and contended that he had occupied it long enough. He thought that his re-election would be at variance with the genius of our republican institutions and the habits of the American people. He believed that rotation in office should be the order of the day, not only among politicians but among scientists and professional men. He felt that his highest ambition as respected this Association had been accomplished. He appreciated clearly that the work which he began was exceeding his most sanguine expectations, and was surely destined to pass into history. We knew that we were losing the guiding hand of a great pilot, and we were loth to permit him to leave the helm of office to serve in the ranks. In the language of a gifted Fellow of this Association: "had the constitution conferred upon us the power, we would have put on him the royal purple, and hailing him chief among all, have bid him wear it for life." But he was inflexible, and that meeting was the last he ever attended. Those of us who were present on the closing day of that session can never forget the trembling words and tearful eyes when he said: "Now that I am about to retire from the discharge of these duties, I feel sure that the interests of the Association will be perfectly safe in your hands, and in the hands of my distinguished successor. I have no greater ambition than to live in your affection and esteem, and to witness the ever-increasing prosperity of this Association. Its success is closely associated with the remainder of my life. I believe that we have an Association which is destined to become a power for good in the land; and when I am dead and gone you will not, I am sure, relax in your efforts to make it what its founder intended it should be—a great and lasting institution. God bless you, gentlemen, in all the relations of life, and may you ever be faithful to the interests of the profession and the Code of Ethics in connection with which we have carried on our work."

Gentlemen, these were the farewell words of an old patriarch to his children, and they should sink deep into your memories, for they were spoken by a truly great man; one of those who are "born beneath the aspect of a bright-eyed star, and whose triumphant adamant of soul is but the fixed persuasion of success."

In less than one short year from that day, he rounded up his great life and rested!

The future was before us. When from Cincinnati the Association took a new departure, and, under the leadership of that venerable and gifted surgeon, Edward Mott Moore, we next assembled here, in the City of Washington, on the 30th day of April, 1884. From that time it can truly be said "we have had a local habitation and a name." Time does not permit me to enter into the details of our annual sessions, which have

been held in this city each spring, nor to mention the interest and enthusiasm of our Fellows, which have made these reunions so pleasant and instructive as they have been. Suffice it to say, our successive and successful meetings from then till now, under the guiding hands of Moore and Briggs, Gunn and McGuire, Agnew, Cheever and Yandell, have gradually passed from small beginnings to the present prosperous and renowned Association which has assembled here to-day.

When this Association was first organized, anæsthesia had but enlarged the domain of surgery. To-day antisepsis, followed by asepsis, has emboldened the surgeon to undertake and perform operations hitherto deemed impossible.

Whilst anæsthesia had measurably lessened shock, antisepsis with asepsis have gone a step beyond, and done much toward the prevention of septic results, thus making the possibilities of surgery even greater.

In the last decade, the rapid and steady advances of the chirurgic art have far outstripped all other departments of the profession; and with the constant and seemingly never-ending improvements now going on in all the branches; the discoveries in chemistry, with the consequent additions to our materia medica; the revelations of the microscope, leading to a proper understanding of pathological lesions, and the clearing up of doubtful points in physiology, together with many new precisions in the study of all the branches of medicine, have enlarged the vista before us, so no one can predict the limitations which may not be reached in the next ten years. It was but yesterday when the closed cavities of the body were held as sacred—the organs within the abdomen, the lungs and heart within the thorax, the brain and spinal cord cased by the skull and vertebral column, were each surrounded by a dead-line which none dared to cross. To-day, they have each become the legitimate field into which the surgeon has carried his knife.

The Old World and the New World, shoulder to shoulder, have been busily engaged in blazing out the pathway from art to science. If our friends from abroad should ask what has been doing here in America, and what hand has this Association taken in the good work? I could tell them, if it would not be considered invidious for me to use names, what our Fellows have been doing in abdominal surgery; their operations upon all the organs contained in the abdomen; their improvements in the treatment of gunshot and other wounds of the intestines; their work done in the thorax, and show them that the brilliant achievements of Horsley, Godlee, Macewen and others across the Atlantic, in brain surgery, have been reproduced here with equal success. Even were it proper to do so, time would not permit me to enter into details of the brilliant work which has been successfully done by the Fellows of this Association in all the regions of the body, both external and internal. Suffice it to say, American surgeons have not been idle nor non-progressive, and their work has been placed on record.

Whilst this Association has been advancing the cause of surgery, and doing much to alleviate the distress of suffering humanity, it is sad to have to relate that death has been busy in our ranks, and that some of our best and most eminent Fellows, even in the midst of their labors and the height of their usefulness, have fallen in their harvest and been gathered to their fathers. Their loss has proved a serious and irreparable one to the Association, no less than to the country.

Since our organization we have been called to mourn the loss of twenty-one of our brothers, among whom we chronicle the death of two ex-Presidents, four ex-Vice-Presidents, four members of the Council, and seven of our Honorary Fellows. Only a very small number have resigned; whilst on the other hand, the applications for membership have vastly exceeded the number of admissions.

It is indeed gratifying to know that those who have fallen from our midst were earnest and zealous laborers in the cause of surgery, and enthusiastic in their efforts to advance the best interests of this Association.

Now when we pause to drop a tear of sympathy and sorrow upon the greensward which covers them, we are solaced with the recollection of their many virtues, and the assurance that although they have passed to the great majority, they had reached eminence in their profession, and left behind them records of well-spent and useful lives. They live honored in our memories.

It is proper to mention that much of the success of this Association has been due to the indefatigable labors of our efficient secretary, who from the date of our organization to the present time has been distinguished for the unwearying and unselfish zeal which he has shown in the duties of his office, and he deserves the highest commendation for the work which he has accomplished. No less are we indebted to the recorder of the Association for his labors, for to him especially is due the editing and publication of the beautiful volumes of transactions which have followed our annual meetings. Lastly, though not least, all praise should be accorded to the Fellows themselves for their zealous coöperation in all the labors of our annual sessions, and their successful endeavors to make the Association what its founders intended it should be, "A great and lasting institution."

During the ten years which have passed so rapidly away, it will be observed that the Association has steadily advanced in prosperity and usefulness, winning for itself an honorable station among the learned societies of the country,

and claiming the admiration of those of the old world. Its volumes of yearly transactions are replete with valuable scientific productions worthy of their authors, and honorable alike to the Association and the Nation. Its membership comprising the leading surgical talent of the land, has fostered an *esprit de corps*, such as is to be found only among refined and agreeable gentlemen.

Bound together as we have been for ten years, new acquaintances have been made and they have ripened into friendships, old ones have been renewed and cemented; and to-day the American Surgical Association stands before the world an united brotherhood inspired with one sentiment, that of doing good to suffering humanity and advancing that department of the healing art to which they have consecrated their lives.

In this connection, a justifiable pride compels me thus publicly to say, from the day of our organization to the present hour, in all our public and private relations; in our intercourse with each other; in our scientific discussions and social reunions, there has not been one single occurrence, one harsh word to mar the harmony of the occasion or disturb the friendship of its Fellows. Verily this is a record, strange and unusual in the history of medical associations and deserves more than a passing notice.

Such in brief, is the outline of our past, and whilst we have every cause to congratulate ourselves upon the successful termination of the decade we are leaving behind, it is still necessary that we should comprehend the importance of the trust which has been placed in our keeping by the founders of the Association.

Holding in our hands its spotless record, it is a happy privilege to be able to feel that we desire its history hereafter to be, but a just development of that which has gone before; so that the ever opening pages of its future may continue to be lighted, as they now are, by a bright reflection from its past. Now let us, here to-day, join hands around this family altar, and renew our vows to make her still greater than she is.

Before closing, I beg to be permitted to make a few suggestions which I trust will not be taken in the light of criticism of the past management of the Association.

First, I suggest that a business committee be provided, whose duty shall consist in the preparation for and arrangement of the scientific work of the meetings; such a committee duly authorized would relieve the president and secretary of much labor and responsibility, and the work which they would accomplish would better serve the interests of the Association than if left to the will and pleasure of the presiding officer.

At the session of 1886, a resolution having this end in view was offered as an amendment to the by-laws, and under the rule was laid over for one year: it however, failed to secure the approval of the Fellows at the session of 1887, and was finally tabled. I now recommend that proper action be had to the effect that the resolution of 1886, be taken from the table and passed, so that the by-laws will require a committee composed of the president of the Association, its secretary and the recorder, together with the two senior members of the Council, to take charge of the preparation of the scientific work of the Association. Their duties should be to select such subjects for the regular essays as they deem best, and have the appointment of those Fellows to lead in the discussions of these papers as in their judgement they believe will serve the best interests of the meetings. It should be fully understood, however, that all volunteer papers be left to the option of the Fellows without the interference or control of the committee.

Although there has not been as yet, any constitutional provision for such a committee, still we have had during the present session and the one immediately preceding it, the benefit of an unofficial committee which has been of vast service in the organization of the meetings, and I now take this opportunity to acknowledge my own indebtedness to them for the very valuable assistance which they have rendered to me in preparing the work of the present session.

Secondly. I suggest that our present limit of fellowship be increased from one hundred to one hundred and fifty. I am induced to make this suggestion entirely in view of the vast extent of our country and the large number of young surgeons throughout its wide domain, who are rapidly rising to eminence in their chosen branch. When this Association was first organized, it was then the part of wisdom that our restrictions should be limited, and our membership confined to a small select body of workers. Now the situation is different, and having passed the stage of adolescence we are prepared to extend our field of operations, and in doing so it is but proper that we should remove the obstruction of exclusiveness; with our present limit of membership we are arrogating to ourselves too much when we claim to be the representative body of American surgeons.

In this, I do not desire to be misunderstood, because I would urge that all due vigilance be exercised in the admission of new Fellows; the present high standing of the Association must be preserved. Age, scientific attainments, with surgical experience and general culture should be the necessary prerequisite for admission.

We have set up for ourselves a high standard, and we can maintain it only by guarding our portals against unworthy applicants. Besides protecting ourselves, we must remember that each one of the conjoint Association is in honor bound to stand sentinel at the doors of the Con-

gress, and as membership in that body can only be had by virtue of fellowship in one or another of the special societies, it is a duty which each one owes to the other to protect the purity of the confederation.

It should be our aim and attainment to make the Association the representative body of surgical science in America; and to accomplish this most desirable end genuine ability and solid work must be the indispensable qualifications for admission; and continued scientific activity, the recognized duty of membership. With such a standard before the world, it will soon become a high and coveted honor to be known as a Fellow of the American Surgical Association.

Now leaving the larger views, I have expressed for a subject which should be nearer and dearer to us all, though not on that account a narrower sentiment, I ask your indulgence only a few moments longer.

It is well known to the world at large, no less than to the profession of which he was an honored member, that Samuel David Gross stood first in the foremost rank in his chosen branch of the profession, and that the high position to which American surgery has attained all over the world, is largely due to his example and his teachings.

Since he has passed away and his life work gone into history, we fully appreciate his real worth, and therefore it is his friends and admirers have been inspired to erect a monument to his memory. Such a monument as will bear testimony of their gratitude and be in the future an incentive to those who are to come after us, to like noble deeds. To further this praiseworthy enterprise, I suggest that a committee from this Association be appointed to confer with the friends and admirers of Dr. Gross and with the medical profession of the whole country to determine the best method to be adopted to secure the requisite amount for the erection of a monument either of marble or of bronze.

Such tributes to the memory of distinguished men are common both in this country and abroad; and when in our own profession, a man is found who has done so much to adorn it, it is meet that we should show to the world our appreciation of his work.

Dr. Gross was probably more widely known and appreciated than any American Surgeon of recent years, and when we remember that thousands of his pupils are scattered throughout the whole of America, men who sat under his teaching and who still retain of him the warmest memories, it is not expecting too much when we feel assured of their coöperation in raising speedily and without difficulty the requisite amount for the completion of such a monument.

I do not suggest that this work be done by the Association exclusively, nor would I advise it if it could be. I would prefer to see it done by the profession of the entire country, because Dr. Gross belonged to no exclusive faction but was a member of the profession at large. It is proper, however, that this Association take the initiative in beginning the monument, and I feel assured that there will not be the least doubt as to the successful issue of the undertaking.

If any man in our profession has merited such a tribute, sure Dr. Gross was most eminently entitled to it; for he was a man animated by fervent attachment to the science and practice of his profession, and it was the duty of his life to augment and exemplify the resources of surgery; and by most assidious and successful application of his time and his talents, his name has become known and honored, not only in his own country but in every land.

Appreciated and honored as he has been in life, let us now, since he is dead, build to his memory such a monument as will bear witness in after years to the estimate in which the profession of to-day holds its distinguished members.

If it were asked of me where such a statue should be erected, I would answer not at Easton, in the State of Pennsylvania, the place of his birth, neither at Cincinnati or Louisville, where he laid the foundations of his future greatness, nor even in the city of Philadelphia where that greatness culminated in all its grandeur; but here in the city of Washington, the capital of the country, which claims him as her own. His name and fame are a sacred heritage to the country at large, and to the profession he loved so well. Then, here in this beautiful city, amid these verdant parks and hard by these massive piles of classic architecture, let us place it among these statues, emblems of a nation's gratitude to her illustrious dead, her statesmen, her warriors, her jurists, her philosophers. Build it here, so that in the ages to come, when the youth of the land make their pilgrimages hither, they will behold the monument which their forefathers reared to commemorate the life and character of her greatest surgeon. It will teach them to emulate his example.

Thanking you for your kind attention we shall now proceed with the regular business of the Association.

TREATMENT OF THE VOMITING OF PREGNANCY.—The *Deutsche medicinische Wochenschrift* recommends the following treatment of pregnancy:

℞.—Creasote, m. x.
Acetic acid, m. xx.
Sulphate of morphine, gr. i.
Distilled water, ℥ i.

A small teaspoonful every half-hour until four doses have been taken.

ORIGINAL ARTICLES.

NASAL CYSTOMATA—REPORT OF TWO CASES.

Read before the Section of Laryngology, Washington Meeting American Medical Association, May, 1891.

BY C. W. RICHARDSON, M.D.,
OF WASHINGTON, D. C.

Cystic tumors involving the mucous membrane of the nasal passages, *i. e.*, true retention cysts, are very rare, if one must form his opinion from the meagre number of reported cases, and the treatment received by this subject—or not received—in most of the classical works upon rhinology. Many of our standard authorities make no mention of this subject, either under a special caption, or under the general subject of mucous polyps. Bosworth in his great work upon the nose devotes one page and a half to the consideration of this neoplasm. Watson and Sajous devote a small space to the consideration of this growth, both referring to its rarity. Wagner reports Leffert's case *in extenso*.

Seiler, in a few lines, speaks of having seen this form of neoplasm and describes it "as large sessile cysts filled with the watery mucous and springing from lower border of inferior turbinate." McKenzie, Brown, Greville McDonald, Cohen, Ingals, Sturck, Votolini, Schech, Bresgen and Moldenhauer make no mention of the subject. In the literature which was accessible to me I found reported four undoubted cases of nasal cystomata, two of which were made by British and two by American observers. To Dr. George Johnson belongs the honor of having reported the first case, which is delineated in a most excellent manner, and with a most exact drawing, in the *London Medical Circular* for 1864. The other observers are Lefferts,[1] E. Fletcher Ingals,[2] and Reginald Horsley.[3]

Spencer Watson reports a case, under this heading, in the proceedings of the Medical Society of London, but in its description he shows it to be rather a cystically degenerated mucous polypus than a true retention cyst. In the second edition of his work upon the nose he acknowledges this fact in the following lines:

"In the proceedings of the Medical Society of London a case of mine is recorded which might be more properly described as a cyst-bearing polypus than as a cyst."

Carl Seiler, in referring to the report of Leffert's case, in the *Philadelphia Medical Times*, refers to having seen three cases, and reports another, a cystically degenerated fibroid growth. The latter could hardly be classified under this grouping. It is important to bear in mind that there is a marked difference between a true retention cyst and a cyst formed by the degeneration of a solid growth. As Watson says, "It is not uncommon to meet with small adenomata which have been undergoing cystic degeneration," and the same is true of gelatinous polypus. With Johnson's, Lefferts', Ingals' and Horsley's cases, which are reported in full, and Seiler's three, of which he only makes mention, we have, so far, reported seven of these interesting neoplasms.

The pathological history of these growths, within the nasal cavity, cannot differ from that of true retention cysts occurring upon mucous surfaces in general; being formed from retention of the secretion within the normal glands of the mucosa. The pressure of the retained secretion becoming great, an abnormal activity takes place within the gland, and it slowly or rapidly becomes transformed into a true cystic neoplasm. The seat of attachment of these growths is, as described by all authorities and as present in my two cases, on the outer wall of the nasal cavities, between the middle and inferior turbinated bodies, about 2 centimetres anterior to the mouth of the Eustachian tube. In four of the cases they appeared in the right, and in two in the left nasal cavities. They are pyriform in shape, of a grayish white color, resembling very much the ordinary gelatinous polypus. They have been observed at all ages, from the twentieth to the fiftieth year of life.

The symptomatology of this condition does not differ from that due to other obstructive diseases of the nasal fossæ. More or less catarrhal secretion is always present, with various degrees of obstruction to nasal respiration through affected passage. Owing to the valvular-like action of the growth, obstructing the post-nasal orifice, expiration is more difficult than inspiration. During respiration the patient feels a to and fro movement in nasal cavity, due to oscillation in growth produced by the impact of the incoming and outgoing column of air. Voice shows usual want of nasal character. Pain is usually absent; but there is always noted a disagreeable sense of fulness upon affected side, as though something foreign were in pharynx. Nasal reflexes may or may not be present. In Horsley's case asthma was a very pronounced symptom, which was relieved by removal of growth. By inspection, through anterior nares, at the posterior portion of the passage can be seen a prominent reflex, moving during respiration. It is only through posterior rhinoscopy that the characteristic outlines of the growth can be observed. The tumor is seen as a large pyriform mass of a grayish white color, having very much the appearance of a mucous polypus, filling out more or less completely one post-nasal orifice. Ramifying over surface of neoplasm are numerous small blood-vessels. On sounding with a probe, it will be noted that the mass is firm,

[1] Medical News, Philadelphia, 1883, xlviii, 633.
[2] Weekly Medical Review, Chicago, 1884, ix, 97.
[3] Trans. Med. Chi. Soc. Edinburgh, 1889-90 N. S., ix, 43-51.

not pitting upon pressure, or presenting that soft, elastic feel of gelatinous growths.

Diagnosis.—The diagnosis of this condition should present no difficulty to the cautious observer. We have the evidences of obstructive nasal catarrh, unilateral in its character, gradual in its onset, and of varying time as to duration. The voice is markedly altered; and to that degree only present in complete obstruction of nasal cavities, or in interference with functions of velum palati. Direct inspection by anterior and posterior rhinoscopy shows existence of polypoid-like, pyriform neoplasms, projecting from nasal into pharyngeal cavity.

The differential diagnosis from mucous polypus is very simple. These gelatinous growths never spring from the seat of attachment of cystic bodies; they rarely ever grow singly, and before reaching the size of these bodies would have many companions; they are soft, indenting to the probe, never giving that firm, solid-like impression imparted by the cystic neoplasm.

From fibroid, sarcomatous and carcinomatous growths, the differential is so simple as not to require description. Is very rare and presents the characteristic pulsation.

Prognosis.—Removal is always attended with absolute relief. No recurrence has ever been noted.

Treatment.—The treatment to be adopted is that of removal of the neoplasm. The simplest method of removal, and the one likely to cause the patient the least discomfiture, would be the preliminary tapping of the cyst, and evacuation of its contents. The empty sac could then be blown forward into the nasal cavity by the patient, where it could readily be grasped by forceps, over which a snare should be threaded and the mass easily enucleated.

This proceeding had to be resorted to in both of my cases, although, I am sorry to say, after I had given them considerable discomfiture by attempting to remove the growth in its entirety.

Cases.—My first case came under my observation November 24, 1889. The patient was a young Hungarian, thirty-two years of age. For ten months past he had noticed a gradually increasing obstruction of right nasal cavity, which had, during the past two months, become almost absolute. He had no pain, although a feeling of discomfort, as though something foreign existed in nasal and pharyngeal cavities, was always present. The alteration of his voice was the condition that annoyed him the most. He is a professor of languages, and it was necessary that his voice should be good. During inspiration, a small amount of air could be drawn through cavity, but expiration was impossible. Left nasal cavity was clear. There was some post-nasal secretion. On examination by anterior rhinoscopy, there was nothing observed in anterior portion of cavity to give any clue as to cause of interference with the normal function of this organ, but deep within the passage could be seen a reflex, indicating the probable existence of a polypoid growth. In the upper portion of pharyngeal cavity was observed a large pyriform, polypoid looking growth, bearing all the resemblance to a true mucous polypus. The base of the growth could only be seen, as it nearly filled out the whole pharyngeal cavity, above the soft palate. Digital exploration demonstrated the growth to be limited largely to the right side, with its seat of attachment within the nasal cavity. It was dense, non-elastic; not presenting the soft, gelatinous feeling of a mucous polypus. I was lost for a diagnosis. Removal was attempted by snaring through the nose, but while adjusting loop over the growth, with finger in pharynx, the sac ruptured, and the contents, a clear serum, was evacuated; the relief was complete. The patient, while clearing his nasal cavity of serum, blew the sac forward, and it presented itself at anterior nares. Supposing the mass to be free from its attachment, I grasped it with a pair of forceps, tearing off the base, which is here represented. Finding that still some remained, I threaded a snare over a pair of forceps, again grasped the mass, and enucleated it from its attachment. I failed to make measurements, but the growth, which has now been immersed in alcohol for eighteen months, speaks for itself.

My second case presented all the symptoms of the first, above mentioned. The patient was a young man of twenty-three years of age, a lithographer by profession. Had noticed obstruction for six months. The growth was not so large as in former case. The diagnosis was made of cystomata, and growth removed with same mishaps as in former case. Dr. H. L. E. Johnson kindly assisted me in first case, and Dr. H. B. Deale in second.

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LARYNGISMUS DUE TO A CONGENITAL VALVULAR FORMATION OF THE UPPER ORIFICE OF THE LARYNX.

Read in the Section of Laryngology and Otology, at the Forty-second Annual Meeting of the American Medical Association, held at Washington, D. C., May, 1891.

BY J. H. BRYAN, M.D.,
OF WASHINGTON, D. C.

In this short communication it is my purpose to call attention only to that form of spasm of the infantile larynx due to a congenital valvular formation of the upper orifice of the larynx, a condition that is sometimes overlooked as a cause of noisy respiration in children.

In these cases there is a laryngismus of a mild variety, and as it is so very persistent, it is evident that it must depend upon some local cause. The

subjects of this condition may be perfectly healthy, showing no evidences of rickets or glandular enlargement—the most common causes of that severe form of laryngeal spasm known as laryngismus stridulous. There is no tendency to convulsions, and the respiration is noisy, or reedy, as described by some, being at times quite labored. The spasm is more persistent than in the severer forms of laryngismus, being present to some extent during sleep, and is greatly aggravated upon any excitement, such as sudden awaking from sleep, sudden change from a warm to a cold atmosphere, crying, change of position, dentition and gastro-intestinal disturbance.

According to Goodhart,[1] it was formerly supposed that at this stage of life, the larynx was too yielding, and that when a rush of air was produced by means of a deeper and more hurried breathing than usual, the air could not pass fast enough, and a noisy respiration was the result. From an observation made by Dr. Lees, an English physician, it appears to be due not so much to a yielding of the parts, as it is to a natural condition of them. He made an inspection of a case that died from other causes, and found that the epiglottis was excessively recurved in its vertical axis—"as if bent in half down its middle," thus bringing the ary-epiglottis folds almost in apposition, leaving a mere chink between them.

In 1878, J. Solis-Cohen[2] called attention to an allied, but much more serious condition, in which the epiglottis was abnormally long, and became incarcerated between the ary-epiglottis folds, causing suffocation. The two cases he reported terminated fatally.

Suckling, an English physician, in the *British Medical Journal* for December 15, 1890, reports one case in an infant 2 months old, and speaks of having observed this affection several times in very young children in the Children's Hospital, London.

Dr. Louis Starr, in a personal note concerning the case I herewith report, states that he has seen a number of cases showing the same congenital deformity, but in none were the symptoms so marked as in my case.

The prognosis of these cases is generally favorable, the difficulty with respiration passing off with the growth of the larynx. [In the way of treatment there is little that can be done, except to give tonics, and keep the child well nourished and free from all excitement.]

The following is the report of an interesting case, and illustrates well the condition I have just described:

In June, 1889, I was called to see a male child 9 months old, suffering from a spasm of the larynx that gave rise to a noisy respiration, and choking symptoms when nursing from the bottle. The family physician informed me that when the chid was 2 weeks old these symptoms were first observed, and they seemed to be increasing rather than decreasing as the child grew older. I was unable at this time to form any definite opinion as to the cause of the trouble, and it was not until I saw the case again at Oakland, Md., where I was called on account of his condition becoming much more aggravated, that I was able to assign any cause for the difficulty. At this time the respiration was noisy and could be heard at a distance of 40 feet or more, being at times distinctly spasmodic in character, and was as loud during sleep as in the waking state. When sleeping, the head was generally stretched back, so as to admit of the air passing in with as little resistance as possible. Examination showed no glandular enlargement, and no evidences of rickets. Other symptoms noted at this time were dilatation of the left pupil, sweating of the left side of the head and neck, phimosis with a very small preputial orifice, excessive irritability, and frequent eructations of undigested milk. It was then ascertained that the child's diet consisted of undiluted cow's milk.

Depressing the base of the tongue, the fauces were found to be congested, and the tonsils moderately enlarged. The epiglottis, as well as could be ascertained, was irregular in outline, and bent backward over the laryngeal cavity.

The spasm at times was so marked that I passed the index finger down to the upper laryngeal cavity, and pulled the epiglottis forward. After this manipulation, the child's respiration was natural for at least a week; but at the end of this period the spasm returned with its former severity.

This I believe to be an exaggerated case of infantile spasm of the larynx due to a binding of the epiglottis causing the ary-epiglottic folds to come almost in apposition, so that during inspiration there was a slight stridor produced. This difficulty with the respiration made a severe impression upon the central nervous system, which was greatly increased by the gastric irritation due to feeding the child with undiluted cow's milk, and also by that due to the phimosis.

The only treatment adopted was to dilute the milk, and to relieve the phimosis, which was done upon his return to Washington, by gradual dilatation. As soon as these sources of irritation were removed, the child commenced to improve as far as his general health was concerned, the respirations ceased to be spasmodic in character, and gradually became normal.

Another case that has recently come under my observation, was the 2 months old daughter of a professional friend. This child had the same characteristic breathing, but not to such a marked extent as in the first case.

No treatment was adopted, and in two months the difficulty had entirely disappeared.

[1] Goodhart, Diseases of Children, p. 592.
[2] Cohen on Diseases of the Throat, p. 627.

MOUTH BREATHING NOT THE CAUSE OF CONTRACTED JAWS AND HIGH VAULT.

Read Before the Section of Laryngology and Otology, at the Forty-second Annual Meeting of the American Medical Association, at Washington, D. C., May, 1891.

BY EUGENE S. TALBOT, M.D., D.D.S.,
OF CHICAGO.

Mouth breathing was not known among the early races, the present pure races or modern uncivilized races, neither are deformities of the jaws and teeth. You will all admit that mouth breathing is becoming a very common occurrence among our own people, and so are also irregularities of the jaws and teeth. It stands to reason, then, that the causes which will produce the one must necessarily, in many cases, produce the other.

In an otherwise able article upon the subject of "The Influence of Adenoid Hypertrophy at the Vault of the Pharynx Upon the Development of the Hard Palate," read before the New York Odontological Society, November 19, 1890, by Dr. D. Bryson Delavan, the author speaks of mouth breathing as a cause. He says: "The mouth breathing habit compels the constant dropping of the lower jaw, which, hanging by the cheek from the superior maxilla, causes constant pressure upon the upper jaw. This produces flattening of the lateral alveolar arches and shortening of them, in consequence of which there is not sufficient space for the eruption of the canines when they are due, and they therefore grow forward."

Other authors mention that sleeping with the mouth open produces tension of the buccinator muscle, this causing the jaws to contract, and they suggest different theories by which this pressure brings about the peculiar form of deformity. There are also very able gentlemen (specialists) teachers in our medical colleges, who are constantly bringing this theory before the students as a cause. This teaching has a tendency to defeat scientific investigation in the direction of ascertaining the real causes of the true condition found in obstruction of the nasal passages by assuming to place the real fact, namely, mouth breathing, as the cause. The students take it for granted that this is the cause and the only cause for this condition.

Let us look at a few facts as they have been presented to me in the constant study of the deformities of the jaws and teeth for the past fourteen years; and you, gentlemen, shall be the judge whether mouth breathing has anything to do with contracted arches or not. In the first place, let us glance at the parts involved. The superior maxillary bones are united at the median line. The outer surfaces have upon their border an alveolar process. Gray speaks of these two structures as one bone, the superior maxillary bone; but from the function, structure and position of the alveolar process in its relation to the maxillary bone proper, they should be described as separate and distinct bones. The maxillary bones proper are made up of dense compact tissue, and are so arranged as to resist force. The outer surface of the bone is fortified and supported by the malar process, which is situated midway between the maxillary process and the canine eminence at the first permanent molar. At the canine eminence we have the strong thick plate of bone extending from the bridge of the nose to the alæ, the mesial portion forming the outer surface of the nasal cavity. We also observe that the nasal septum is situated at the centre of the nares and is attached to the maxillary bone at and along the place of union of the two halves of the maxillary bone. If a saw was passed through from one canine fossa to the other we should see that it involved the strong pillar of bone which goes to make up the outer surface of the nasal cavity. This strong pillar of bone is situated just at the point of the permanent location of the cuspids; this, together with the nasal septum, form a strong support to the hard palate. The maxillary bones are for the attachment of muscles and the resistance of force in masticating food. The hard palate does not assume the normal shape until the twelfth year, or after the teeth are all in position. The vault may be high or low, ranging from one inch above the margin of the alveolar process, between the second bicuspid and first permanent molar (which is the highest vault I have seen) down to one-quarter of an inch from the same point, which is the lowest vault I have observed. In either case they are normal, each variety depending upon the shape of the bones of the head for its peculiar form. The alveolar process, on the other hand, is made up of soft cancellated structure, and is solely for the purpose of protecting the germs of the teeth before they have erupted, and it also supports the teeth after they are in place in the jaw. From the time the teeth make their first appearance until they are lost, the alveolar process has developed and been absorbed three distinct times. The alveolar process, then, being solely for the protection and support of the teeth, it stands to reason that the position and shape of the alveolar process depend upon the location of the teeth. The bone proper, therefore, as we shall see later, is not influenced to any great extent by the movement of the teeth. The buccinator muscle is composed of striated muscular fibres, and is therefore under the control of the will. It is penniform in shape. It has its origin and insertion along the body of the jaws, above the alveolar process on the upper jaw, and below the alveolar process on the lower. It extends from the first bicuspid tooth anteriorly to the wisdom tooth posteriorly. The centre of the muscle would therefore be in one direction on a

line with the grinding surface of the teeth, and in the other direction at the first permanent molar. Its function is for the purpose of compressing air in the act of blowing, whence its name is derived, and also for the purpose of carrying and holding the food under the teeth during mastication. There are many cases of contracted arches where mouth breathing does not exist. There are also many cases of normal arches where it does exist. As all are aware, mouth breathing frequently commences very early in life; contracted jaws, on the other hand, never commence to form until the seventh or eighth, and in most cases the tenth year, except in cases of monstrosities, or from traumatic causes. When these conditions exist they are wholly unlike the usual contracted arches and can be diagnosticated at once, and therefore should not enter into this discussion. Contracted arches are of two kinds–V (Fig. 1) and saddle (Fig. 2)—all the other varieties being modifications and blendings of these two. It is apparent to every one that the cause which produces the one does not produce the other. My observation has been that there are two-thirds more V and saddle-shaped arches among the low vaults than among the high vaults, taking $\frac{18.77}{32}$ of an inch as the average, but where one of these deformities exists with a high vault it is always more marked, for the reason that in the high vault the alveolar process is high and thin, and the teeth are more easily carried in one direction or the other, with very little resistance. In the V-shaped arch commencing at the first permanent molar, there is a gradual narrowing of the teeth and alveolar process toward the median line, where the incisors may reach a point or may stand in their normal position to each other. Invariably there is a protrusion of the teeth and alveolar process, and not the jaw. On the other hand, in the saddle-shaped arch the bicuspids are carried inward and the deformity is invariably situated between the first permanent molar and the cuspid. Unlike the V-shaped variety the anterior teeth and alveolar process never protrude in this class of deformities. The contracted hard palate is always associated with the V-shaped variety, and in most cases extends backward to the second bicuspid. It is never seen with the saddle-shaped variety. The high vault is never seen in the first set of teeth, nor does it develop until the second set are all in place, which is at the twelfth year. The vault commences to slope slightly from the neck of the incisor until it reaches a line drawn across the roof of the mouth from the first right bicuspid to first left bicuspid, and then it gradually or abruptly slopes upward until a line is reached which is drawn across the jaw from the anterior surface of the opposite permanent molar. From this point posteriorly to the soft palate the dome is usually on a level; occasionally we see a slight depression and occasionally a slight elevation, but these are so slight as to escape notice unless one were looking for the peculiarity. In mouth breathing the lower jaw usually drops only sufficient for the passage of the same volume of air as would pass through the nasal cavities, which is only about one-half inch. Old people often sleep with the mouth open and frequently to the fullest extent, but these deformities of the jaws and teeth never occur after the eruption of the teeth, say at the twelfth or fifteenth year. When one opens his mouth he is conscious of a tension of the orbicularis oris, but not of a pressure of the buccinator, no matter how wide it may be opened. This muscle being under the control of the will is always passive except in the act of blowing or eating, therefore contraction during sleep is wholly out of the question. As the buccinator muscle extends anteriorly to the first bicuspid only, it can produce no effect upon the V-shaped variety of deformity, in which is also found the contracted vault. Therefore the only deformity that is likely to be produced is the saddle-shaped variety, which is out of the question for reasons which I shall

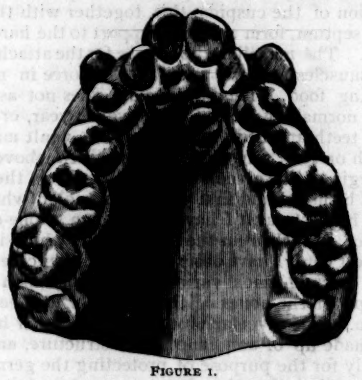

FIGURE 1.

FIGURE 2.

explain later. The orbicularis oris muscle cannot produce the contraction, because when the mouth is open the pressure exerted on the six anterior teeth is backward. Thus the teeth are carried in the opposite direction from that which must be taken to produce this deformity. Again the pressure is just as great upon the incisors as upon the cuspids, thus holding them in place. More force is exerted by the orbicularis oris upon the six anterior teeth when the mouth is open than can be exerted (if it were possible) by the buccinator muscle, which would tend to hold the anterior teeth in place. For years it has been demonstrated by dentists in regulating teeth that it is very rare for the apices of the roots of teeth to move when pressure is brought to bear upon the crowns of teeth for the purpose of regulating them. This being the case, teeth having long roots like the cuspids are less liable to move than teeth with short roots like the lateral incisors and bicuspids. Since in the moving of a tooth the greatest change which takes place is at the neck, it stands to reason that the greatest absorption and deposition of bone takes place at that point. The roots of the cuspid teeth are larger and longer than any other teeth in the jaw; unlike other teeth the germs are situated considerably higher and farther toward the outside of the alveolar process, so that when they come close into position they diverge from the apices to the crowns, while all the other teeth stand nearly or quite perpendicular, thus showing that the roots of these teeth do not influence the hard palate. I have shown that the first permanent molar and the teeth posterior to them are never involved. I have also shown that the centre of the muscle in both directions is located at this tooth. How is it possible, since all the teeth are covered by the muscle upon one side, that half are carried inward and the other half remain normal? Again, if mouth breathing is the cause of the contraction, both sides must contract alike, and the deformity must be uniform upon both sides, which is never the case. Muscles do not contract to a degree sufficient to produce the pressure necessary to produce a deformity. It is inconsistent with our knowledge of the influence exerted by muscular structure in other parts of the body. Some of the muscles of the chest exert much more pressure in respiration than it is possible for the buccinator to do, during sleep, yet no one would expect to find the ribs modified by this process. The pressure of the tissue upon the crown of teeth is not sufficient to affect the alveolar process through the roots of the teeth, but even if it could modify those spongy structures its force would stop there, and would not extend to the osseus vault, bending it out of shape. In most of these cases the superior maxilla and the diameter of the alveolar process and teeth is very much smaller than the inferior maxilla, alveolar process and teeth; in such cases the muscles and cheek could not reach the teeth and alveolar process upon the upper jaw. This is always the case in the worst forms of irregularities. The changes which take place in bone are not a bending in at one place and forcing out at a weaker point to compensate for the space lost, but are an absorption and deposition of bone at the point of pressure. And even if such were the case the strong pillar of bone situated at the very point of contraction of the alveolar process, together with the nasal septum, both form a strong bulwark for the resistance to the pressure which is situated quite a distance from the top

FIGURE 3.

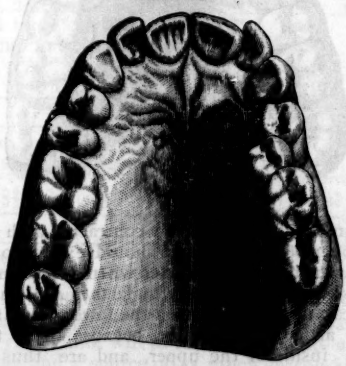

FIGURE 4.

of the vault. Again, it would be as impossible to produce pressure sufficient to break the dental arch as it would be for the weight of a building to break the arch of a door or window. The tongue exerts a much greater force in the act of swallowing and would prevent the inward movement of the teeth if so slight a pressure as the muscles of the cheeks were the cause of the deformity. For the sake of the argument, let us suppose it were possible for the buccinator muscle to produce this contraction; we should then expect to find the modification of the osseous structures

uniform. This would shut out semi-V (Fig. 3) and semi-saddle-shaped arches (Fig. 4) entirely, and a majority of other irregularities of the teeth in which there is bilateral asymmetry, for however much one would incline to the prevalent theory, no one would dare to assert that the muscle will act on one side of the mouth, while that on the opposite side remains passive. Partial V- (Fig 5) and partial saddle-shaped arches (Fig. 6) make it still less plausible. In these we meet with sudden bends inward where only one or two teeth may be involved, which could only be produced by a centralization of force on one given point or fibre of muscle, a peculiarity of function that has never yet been ascribed to muscles. The muscle being penniform in shape, it would be impossible for one or two fibres of the muscle to exert its influence upon a bicuspid. It would naturally lap over two or more teeth. Lastly, if the buccinator acts as all muscles uniformly throughout its extent of contraction, below its median line it is just as efficient in producing a narrow contracted arch as in its upper portion, and we should expect to find the lower maxilla contracted whenever the upper one is, which is contrary to facts. A V-shaped arch can never occur upon the lower jaw, if the teeth articulate normally, because these teeth strike inside of the upper, and are thus prevented from moving forward. A saddle, partial saddle and semi-saddle arch may occur on the lower jaw, but these deformities are not often seen. When they do occur they are the result of improper occlusion with the teeth of the upper jaw. We always observe in semi-V and partial V-shaped arches that the alveolar process is contracted upon the side of the deformity. If one side is contracted more than the other we shall observe that the alveolar process is contracted in proportion to the amount of deformity; the vault on that side is not carried up beyond the other side, which is normal. In the saddle, semi-saddle and partial saddle-shaped arches we find the alveolar process built up about the teeth in the precise uniformity to the nature of the shape of the arch. If we take 3,000 models of the upper jaw and arrange them in groups according to the forms here represented and then examine very closely the arrangement of the teeth in each group, we will be unable to find any two alike in either group; thus showing that an external force acting upon the jaws from the outside could not possibly be a cause. If it were possible all the models of one variety would resemble some exact form. Dr. Delavan says that "The prominence of the anterior region of the alveolar arch is still further increased by the projection forward of the superior maxilla at this point, and of the upper teeth." The doctor is quite mistaken as regards the "projection forward of the superior maxilla." The maxillary bone never protrudes in front in this class of cases, it is only the alveolar process which is carried forward by the projecting teeth. The only tissues involved in these deformities are the teeth on the one hand, and the alveolar process on the other.

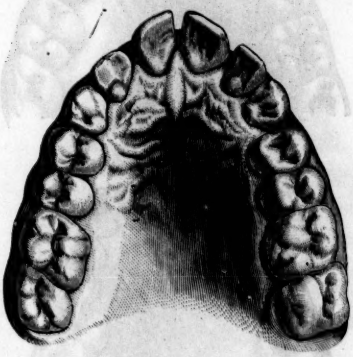

FIGURE 5.

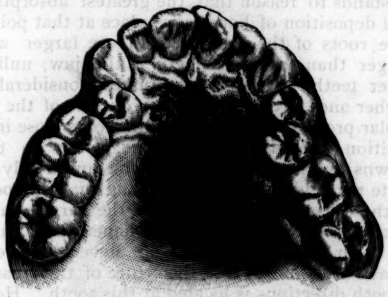

FIGURE 6.

In most cases the cause of these deformities is arrest of development of the maxillary bone. This condition is due not only to hereditary influence, but also to direct causes, such as the eruptive fevers and all lesions which are constitutional and which produce long sickness. When arrest of development of the superior maxilla takes place we always notice a depression at the alæ nasi and a sunken condition of the bones of the face on the line drawn from ear to ear, and occasionally extends up to the floor of the orbits. If we will examine closely the faces of an audience in Chicago we shall observe that from forty to fifty per cent. of all these people have this arrest of development of the superior maxilla. Such being the case, arrest of development must necessarily extend to the bones of the nose, thus producing mouth breathing. Ziem has frequently shown that if one nostril of a rabbit be permanently closed and the animal killed after it has attained its full growth, the nasal cavity of

the affected side will be found to be undeveloped and asymmetry of the face will take place. Arrest of development of the bones of the nose, and hypertrophy of the bones and mucous membrane will ensue as a result. A good illustration of hypertrophy of mucous membrane from want of use is observed by dentists when the gums puff up, thicken and extend one-half to three-fourths of the length of the teeth from want of brushing. It would be useless for any one to say that mouth breathing is the cause of one case of V shaped arch in every twenty, and that some other cause produced the rest of the deformities. We must have a law which will work in all varieties of contracted arches as well as the V-shaped, which variety constitutes a very small percentage of the whole. I have watched the development of these different varieties for the past fourteen years, have taken impresslons of the mouths of some of the most marked cases every three months and compared them. I have also produced most of these forms in the movement of the teeth for the purpose of correcting deformities.

I regret that it will be impossible at this time to show how these different forms of irregularities of the teeth are produced, but they are nicely described and illustrated in my work upon "Irregularities of the Jaws and Teeth and Their Treatment." I will, however, say that they are caused by the long diameter of the dental arch being too great for the long diameter of the superior maxilla. Having then discovered the cause (that of arrest of development of the maxillary bones) of contracted jaws and irregularities of the teeth, have we not a good foundation to work upon to discover the cause of deflected septum and mouth breathing?

The following table will explain the difference in the height of vaults, both in normal and defective jaws:

HEIGHT OF VAULT—NORMAL JAW.

7/32	8/32	9/32	10/32	11/32	12/32	13/32	14/32	15/32	16/32	17/32	18/32	19/32	20/32	21/32	22/32	23/32	24/32	25/32	26/32	27/32	Total No.
1	2	70	171	169	146	159	182	69	199	429	936	218	514	150	568	149	427	69	75	12	4614

Average, $\frac{18.771}{32}$ of an inch.

SADDLE-SHAPED ARCH.

7/32	8/32	9/32	10/32	11/32	12/32	13/32	14/32	15/32	16/32	17/32	18/32	19/32	20/32	21/32	22/32	23/32	24/32	25/32	26/32	27/32	Total No.
					1			3	5	5	6	5	4		3	5	5	1	1		44

Average, $\frac{19.47}{32}$ of an inch.

V-SHAPED ARCH.

7/32	8/32	9/32	10/32	11/32	12/32	13/32	14/32	15/32	16/32	17/32	18/32	19/32	20/32	21/32	22/32	23/32	24/32	25/32	26/32	27/32	Total No.
			2		4	1		3	8	3	15	4	9		5	1	2		1		58

Average, $\frac{17.89}{32}$ of an inch.

SEMI-V AND SEMI-SADDLE-SHAPED ARCH.

7/32	8/32	9/32	10/32	11/32	12/32	13/32	14/32	15/32	16/32	17/32	18/32	19/32	20/32	21/32	22/32	23/32	24/32	25/32	26/32	27/32	Total No.
	1				1		1		3	3	5	1	4	2		2		1			24

Average, $\frac{18.15}{32}$ of an inch.

TREATMENT OF HYPERTROPHIED TONSILS BY MEANS OF IGNI-PUNCTURE.

Read in the Section on Laryngology and Otology at the Forty-second Annual Meeting of the American Medical Association, held at Washington, D. C., May, 1891.

BY GILBERT I. CULLEN, M.D.,

OF CINCINNATI, O.

Consulting Laryngologist to Cincinnati Free Hospital for Women; Clinical Demonstrator of Laryngology and Otology in the Cincinnati College of Medicine and Surgery, and Clinical Lecturer of Rhinology and Laryngology, in the Women's Medical College of Cincinnati.

There is probably no disease with which the laryngologist has to deal with more frequently than enlarged or hypertrophied tonsils, and consequently a successful method of their treatment, I trust, will prove of interest to all.

This condition, while not presenting the unfavorable prognosis of many forms of throat disease, yet I think will at times prove quite as distressing and a source of as much discomfort to the patient, as some of the most serious maladies with which we come in contact. As it is not the object of this paper to present the various forms of hypertrophy or disease of the tonsils or their attending symptoms, I will not enter into a consideration of these points except where they bear a direct relation to some of the principles upon which the treatment is based.

The galvano-cautery possesses the power of filling a double vocation, that of completely dissecting the tonsil and that of merely reducing it in size by the cicatrization of the tissue of which it is composed.

Relative to the first function might be mentioned, the able contribution to this subject by Dr. Pynchon, who, in a paper read before the Chicago Medical Society, October last, clearly described his method of the complete removal of an hypertrophied tonsil by means of a thorough dissection with the galvano-cautery electrode. I would thoroughly endorse this means of complete removal of the gland whenever the indications for such action present themselves. Where it is desirable to employ a galvano-cautery snare, I would recommend the one made by Hazard & Co., of New York, as undoubtedly the safest and most practical instrument that has been devised for this purpose, and should be used where the tonsil is so located as to enable its application and in cases in which excessive hæmorrhage is anticipated.

In the selection of the electrode for puncture, I use one to correspond with the size of the lacunæ, and one that requires some slight pressure to insert it into the crypt. Cocaine is first applied to the tonsil, and a solution of from 4 to 10 per cent. being used, either in combination with phenol as recommended by Gluck, or the pure cocaine, either of which will insure immunity from all pain or discomfort during the procedure. I prefer the addition of phenol to the cocaine solution, as I think the constitutional effects of the latter are less, and the degree of anæsthesia greater.

The electrode should be inserted to the depth of the lacunæ or follicle of the tonsil, and two or three punctures in close proximity should be made at one sitting, to be repeated in from three to six days, as the condition of the gland will warrant. This to be followed by a soothing antiseptic spray of menthol, resorcin, or a modification of the well known Dobell's solution, which formula is somewhat improved by substituting bichloride of mercury in the strength of from 1 to 1,000 to 1 to 4,000 for the carbolic acid, tr. ferri chlor., and glycerine, equal parts; and many others might be mentioned.

Pynchon makes use of the bicarbonate of sodium in saturated solution, and if the after-inflammation become severe, he uses a mixture composed of tincture of iron and chlorate of potash in glycerine—one dose, containing from 6 to 12 minims of the iron and about 4 grains of the potash, every 2 hours. This treatment I have found to be very satisfactory in a number of cases. In cases of after-hæmorrhage from galvano-cautery puncture, which are *very rare*, I order the patient to take a sip of a mixture composed of tannic acid 2 parts and gallic acid 1 part, with sufficient water added to render it the consistency of a thick cream; this has invariably checked the hæmorrhage at once.

In operating it must be borne in mind that the external carotid artery is about three-fourths of an inch from the tonsil and the internal carotid about one-half inch; these distances may be materially increased by traction upon the organ, as it has been demonstrated that the cellular tissue between these arteries and the tonsil is elastic and yielding and does not draw the vessels with it when traction is made upon it.

Sajous says that the soft form of hypertrophied tonsils will yield the best results from this method of treatment.

One of the principal advantages of this method of operating is its comparative freedom from danger either from hæmorrhage or septic infection. It is well known that, although exceedingly rare, alarming hæmorrhages from operations upon the tonsils have occurred, cases being reported by Agnew, McCarthy, Velpeau, Delavan, Max Thorner, and others, some of them necessitating the tying of the carotid artery in order to check the bleeding. The advantage of the cautery knife always being surgically clean is also a most important point, as it can readily be appreciated that the electrode, although reeking and loaded with germs, is rendered perfectly aseptic the moment the current is turned on. The process of sterilization being performed by the only perfectly reliable germicide—heat.

The degree of heat used is that of a moderate red, the knife being allowed neither to cool to a black heat before its removal from tissue, as pain and hæmorrhage will result, nor to attain anything like a white heat, as in that case the pain will be more severe and the danger of injuring surrounding tissue greater. Lennox Browne recommends that the knife be used either at black heat or a dull red, and considers anything approaching bright red or white heat as positively dangerous and to be avoided under all circumstances.

I make use of the finer pointed electrodes for the puncture and the flat knives for smoothing off any ragged edges or surfaces that may remain.

After trying all makes of batteries, I think the new Edison-Lelande gives promise of proving the most satisfactory, as it requires absolutely no attention until entirely run down, while the process of manipulating it is the same as that of a storage, viz.: simply close the switch on electrode and the current is made, no lowering and raising of elements, and it will run a light steadily for about 8 hours. This battery also serves admirably for the purpose of operating my motor.

The main indications for reduction of tonsils by galvano-cautery might be summarized as follows:

1. When tonsils have ceased to perform their function by reason of interstitial thickening and occlusion of the lacunæ of the glands, in which condition the mouths of the crypts becoming blocked with the accumulation of sebaceous matter, which rapidly decomposes, they form an ex-

cellent culture medium for various pathogenic germs which may ultimately be absorbed into the lymphatic system.

2. That when a tonsil shows itself competent at short intervals to become inflamed and give rise to peritonsillar abscess.

3. Where the tonsil is so situated that it is a matter of great difficulty as well as danger to use the tonsillitome, and from extensive adhesion of the pillars, likely to cause severe hæmorrhage by their being cut.

4. In all cases where the patient is of a hæmorrhagic diathesis or in other cases in which alarming hæmorrhage is feared.

5. Where patients will not consent to the use of the knife and yet the demand for the removal of the gland is imperative.

NOTES ON ARISTOL IN THE TREATMENT OF THE DISEASES OF THE NOSE AND THROAT.

Read in the Section of Laryngology and Otology, at the Forty-second Annual Meeting of the American Medical Association, held at Washington, D. C., May 6, 1891.

BY WENDELL C. PHILLIPS, M.D.,

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Nearly every month a new antiseptic is presented to the medical profession, each claiming to outdo all its predecessors and to be perfect in all its attainments.

But experiments have proved most of them to have one or more obnoxious qualities that greatly interfere with their usefulness in the sphere for which they have been recommended.

One, if used in sufficient strength to become a true antiseptic, is found to be a local irritant.

Another corrodes the instruments and unless great care is used will poison both the patient and the operator.

A third is accompanied by an odor so pungent and disagreeable that few patients will submit to it, and the usefulness of still another is greatly lessened by the staining to hands and clothing that results from its use.

All of the earlier antiseptics were handicapped by their poisonous qualities, and consequently could only be used to a limited extent.

Aristol, one of the more recent ones, possesses some qualities that have attracted the attention of various observers, and a combination of the drug has been suggested by the writer that is bringing about good results both in nasal and in general surgery, and which will be described in a later part of this paper.

Aristol is a combination of iodine and thymol, and is known as an iodide of thymol.

It was first suggested by Drs. Messinger and Vortman, of Aix-la-Chapelle, as a substitute for iodoform.

It is described as a "fine yellowish red powder which is inodorous and nontoxic."

It is insoluble in glycerine and very sparingly in alcohol, but very soluble in ether, chloroform, and fatty oils.

It is decomposed by heat and by light, and after decomposition its odor is similar to that of iodoform. Reports of its use, in the treatment of diseases of the skin, ear and mucous membranes of the nose, throat, and vagina, have come from various sources and the consensus of opinion is that it is nontoxic, and that its antiseptic properties are equal to, and in some cases superior to iodoform.

Lowenstein[1] used it in three cases of simple ozæna by insufflation and says "after a few days the fetor had disappeared, the formation of crusts was reduced and the headache ceased".

He has also used it in solution with ether in the proportion of a dram to the ounce with good results.

Hughes[2] also used it by insufflation in nine cases of rhino-pharyngitis, accompanied by ozæna, and reports great relief in all the cases; the fetor was greatly reduced, and the crusts were easily removed. He believes it to have the power to stimulate the secretion of mucous membranes.

Rhorer[3] reports twenty cases of acute catarrhal otitis media, treated with insufflations of aristol in powder and notes that the secretion is quickly reduced in quantity; the mucous membrane of the middle ear becomes smooth, and the swelling disappears in a few days; the perforation heals if there was no great loss of substance.

Brocq[4] reports a case of large ulcerating superficial epithelioma of the face rapidly cicatrized by the use of aristol, and believes it to possess the power of causing rapid cicatrization superior to anything that has heretofore been used in similar cases, but does not consider it a specific for the disease. He further remarks "that the most remarkable evidence of the cicatrical power of aristol is observed in superficial ulcerations of a tuberculous origin."

Thus in a case of elephantiasis of the foot the ulcerations, which had been treated for a long time with lactic acid, camphor, naphthol, and iodoform, respectively, were cicatrized within a fortnight by the application of powdered aristol.

Another tuberculous ulcer developing on an old scrofulo-tuberculous cicatrix, has been healed in twelve days.

It has also been used by Gaudin, Seifert, Erchhoff, Schirren, and Neisser in various skin affections.

The method of using it has been chiefly in

[1] Int. Klin. Rundschau, May, 1890.
[2] Dr. Med. Woch; 1890, Nos. 10 and 19.
[3] Archives internacionales de Laryngologia, 1890, No. 2.
[4] Bull. and mem. de la societe, medicale des Hôpitaux de Paris, May 1, 1890.

powder, but in some instances it has been made into ointment, in varying proportions and, when a solution was required, in ether, chloroform or flexible collodion.

My experience with the drug dates from August 1890. I first used it at the Manhattan Eye and Ear Hospital in solution with flexible collodion in the proportion of a dram to the ounce.

Several cases of chronic atrophic rhinitis with ozæna, one case of syphilitic ulceration of the septum, and one case of simple ulceration of the septum were treated with this solution by means of a cotton probe.

In the cases of ulceration of the septum the results were good, and healing was accomplished in both.

In the case of ozæna (and I speak of ozæna as a symptom, not as a disease) the results were not so satisfactory but were sufficiently good to warrant a further use of the drug. The odor was very much lessened after a few days treatment and the secretion became less inspissated.

These comparatively favorable results led to the conclusion that if aristol could be brought more thoroughly into contact with the entire surface of the diseased membranes, far more could be accomplished both in correcting the disagreeable odor and perhaps destroying the cause of it by bringing the membrane into a healthier condition.

To bring this about, no matter what remedy is to be used it stands to reason that it must be brought into contact with the entire diseased surface, and as a rule, a very large surface of the nasal tract is in a diseased condition in cases of chronic atrophic rhinitis.

The anatomy of the nasal cavities with their various projections, depressions, processes and fossæ, is such that a thorough application cannot be made by a cotton probe.

Treatment by insufflations as recommended by several of the gentlemen previously mentioned is preferable, and I have resorted to it in several cases, but found it difficult to make a thorough application without using a large quantity of the drug, much of which would be wasted, and its expense will not allow of waste.

It has become an axiom in the treatment of nasal diseases that, of all the methods resorted to for local medication, none are to be compared either for convenience, thoroughness, or effectiveness, with the spray.

Believing this to be true and believing also that, if aristol could be used in the nasal cavities by means of a spray, much more could be accomplished in the treatment of the cases under consideration, I endeavored to get a solution of the drug that could be used for spraying and would at the same time remain permanent.

Knowing that the liquid petroleum products have deservedly largely taken the place of aqueous solutions for spraying purposes; and knowing also that the same principles that obtain when menthol, eucalyptol, etc., are used in solution with liquid petroleum would hold good with aristol, I succeeded in having a solution made that is applicable for spraying purposes.

Aristol is not soluble in any form of liquid petroleum, but with care a solution can be made by first dissolving the aristol in a small quantity of pure almond oil, afterwards adding the liquid petroleum.

A solution of thirty to forty grains to the ounce answers for all nasal requirements. It is well to flavor with a little oil of wintergreen.

I have treated twenty-two cases of ozæna with the spray as above described. Twenty of these are the ordinary type of this condition, one is due to inherited syphilis with an obstruction due to a deflected bony septum, and with a partial adhesion of the soft palate to the posterior wall of the pharynx, and the other case is supposed to have a piece of zinc plate imbedded in some portion of the nasal tract which I have been unable to find. In this case the odor was so fetid that the patient could detect it herself.

In fact, all of these cases are of a severe type, and presented large collections of inspissated crusts. At the first visit the crusts were removed before using the aristol spray, but afterwards little was done except to use the spray.

The patients are taught how to use the spray properly at home and are directed to use it night and morning. Much depends upon the way it is used, and patients should be instructed to inhale the spray.

The results so far obtained have been similar in all the cases.

The odor of the breath in every case has entirely disappeared in from two to five days, and has not returned, but the cases are still using the remedy. Consequently it is impossible to state how permanent this result is. However, if the ozæna can be held in check only by the daily use of aristol, more is accomplished than ever has been done before.

The formation of crusts, has, also, been greatly lessened in every case; a fact that is probably due to the stimulation of secretion caused by this drug.

It is certainly true that aristol excites a copious secretion from all mucous membranes, but the secretion is less noticeable from the nasal than from other membranes, notably the urethra.

This power to induce a more copious, and therefore a healthier secretion lessens the formation of crusts, and by so doing it also lessens the odor which comes from the decomposition of the secretion.

This result tends to a healthier condition of the membranes because the secretions do not remain in contact with them until they decompose.

I venture to predict that if aristol proves to be possessed of actual curative properties in catarrhal diseases the results will come from its power to stimulate secretion as well as from its disinfectant properties. That it is a useful agent cannot be denied, but conclusive judgment cannot be passed until it has been given a longer trial.

161 East 37th St.

PHYSICAL CULTURE A NECESSITY.

Introductory Lecture delivered at Rush Medical College, Chicago, Sept. 29, 1891.

BY JOHN B. HAMILTON, M.D., LL.D.,

Gentlemen :—I am deputed by my colleagues to bid you welcome to these halls, and to this oldest medical school of the Northwest.

It ushers in its forty-ninth annual course, with every prospect that the new requirements of advanced general scholarship, as preliminary to admission, are being well met, and that a solid advance has been made in the attainments of the medical students of this metropolis.

We welcome you, then, as more nearly *frater* than *discipulus*, and it will be understood that the educational seed sown hereafter will fall upon soil well prepared, and coming as you do from different environment, and perhaps to a more artificial life, I do not know that I can on this occasion render you a better service than to direct your attention to the necessity of caring for your body not less than for your minds. The mental digestion of a student corresponds very closely to the physiological digestion, and many a man has failed to become a learned man from physical disability alone.

You may occasionally read of a soured misanthropic dyspeptic like Carlyle; whose mental activity is very great; but such a person is an exception, a veritable *lusus naturæ*. The rule is that the better care taken of the body the more perfect the mental processes. Dyspeptics are usually made not born such.

As preliminary, then, to the study of the practice of the art, I will for this evening's lecture take up the subject of

PHYSICAL CULTURE, ANCIENT AND MODERN.

Within a few years there has been much said in America on the subject of physical education. It had begun to be apparent that, with all our boasted progress in wisdom, in general intelligence, and in the arts and sciences, we had omitted from our curriculum any study having for its object the systematic training of the body.

The body cannot become a perfectly working machine without culture or training, any more than the mind can become intellectually expert without that drill which we call education. We do not look for able logicians in those who have not had mental exercise. We ought not to expect sound bodies in persons whose every free and natural movement has been repressed in childhood, cramped by fashion, and neglected throughout life.

It is not a pessimistic view of the case to consider that one-fourth of our population of military age probably could not pass a physical examination as recruits. It is probably within bounds to say that a majority of persons thus disqualified have become so from neglect of muscular exercise. The hollow-chested consumptive was not long since the type of the scholar, and the moral of this lesson was to teach people to avoid schools, for fear of the production of physical deformity or imbecility. It was this feeling that college graduates were unfitted to deal with the rough elements of daily life in the world, that brought about the changed sentiment whereby our colleges now encourage manly sports and exercises. Like all reforms, when once instituted it may go too far, yet with all our knowledge on the subject, few private or public primary schools devote any appreciable time to the cultivation of sound bodies. This is left to chance. What would become of the mind similarly neglected? Are we prepared to admit that the mind is inferior to the body? We cultivate and stimulate one, and mortify and neglect the other. The brain cannot live without the spinal cord and sympathetic ganglia, and healthy, active circulation is necessary to cause clear, vigorous, mental actions. Is it not then of first consequence that our primary education should begin with training the muscles, the nerves, the eye, the ear and the hand at the same time we commence to stimulate the brain by precept.

"*Ut sit mens sana in corpore sano.*" "Let me have a sound mind in a healthy body," says Juvenal, in his prayer to the gods, and there is but little doubt that the ancients thoroughly understood the philosophy of the case; but it was "professionalism" that ruined the Grecian gymnasia and transformed the manly athlete into a commercial harlequin, or a repulsive brute.

The physical welfare of the people has been one of the chief cares of states since the organization of governments among men. First for physical self defence, and second for conquest, and it has been found that where the highest types of men existed, there also were found examples of the highest type of the human intellect. The poetry of Homer grew on the same soil that produced Leonidas and his hardy veterans, and viewing Greece as a whole, without reference to the internecine wars and minor differences which separated it in states, we may truthfully affirm that the same civilization that produced the Spartan may justly display at Athens the art of Praxiteles and Phidias, the eloquence of Demosthenes, the wisdom of Socrates, the jurisprudence of

Solon and Spartan Lycurgus, the logic of Aristotle, the learning of Plato and Euclid, the incomparable skill of Hippocrates, the histrionic art of Æschylus and Euripides, and the histories of Xenophon and Herodotus. What would Greek sculptnre have been, had it not been for the athletic exercises that gave form and symmetry to the human figure in the times contemporary with the productions of the immortal statuaries? If the muscles of the Homeric heroes were unduly prominent, was it not gigantic intellect that recorded their prowess? Was it not phenomenal skill that chiseled their likenesses in enduring marble?

The Roman warriors were also contemporary with her orators, although the art of the period was wholly Greek.

With luxury and idleness came physical and mental decay.

Loss of physical strength was accompanied by general depravity. When Lycurgus forbade the art of writing in Sparta he at the same time did not neglect to stimulate the mind by requiring the laws to be memorized and transmitted by the mouth, and although in our times such rigorous rules as those by which the Spartans were governed would be unendurable and unnecessary, it is evident that they were adapted to their times, and that they succeeded not only in developing the ancient Doric character, but in gaining Lacedæmonian ascendancy. The Spartans indeed valued the sound body to the most extreme degree. No other Grecian state ever found it necessary to destroy the deformed children. The Spartan custom required that the new-born child should be carried to certain examiners who held court (Lesche) λεσχη, where the infants were carefully viewed; the well-formed and strong were ordered to be cared for, the puny or delicate or misshaped ones were condemned and "cast into a deep cavern in the earth near the mountain Taygetus, as thinking it neither for the good of the children themselves, nor for the public interest that they should be brought up, since nature had both denied them the means of happiness in their own person, and of not being serviceable to the public, by not endueing them with a sufficient measure of health and strength." (Potter, Grecian Antiquities.)

While the Greeks in general were not inclined to follow the Spartan custom of destruction, yet the children of the poor were "exposed," and it may well be believed that it cost a less pang to expose a deformed than a healthy infant. When the child was to be educated, the whole scheme was comprised in four parts, grammar, music, gymnastics and the art of drawing and painting. Gymnastics, however, were considered of transcendent importance, and this part of the period of education occupied as much time as all the other branches. The legislation of Solon was particular in regard to the gymnasia, and there was a superintendent called a gymnasiarch who was a civil magistrate, having jurisdiction over the gymnasium, and all who frequented it. This gymnasiarch had power to remove any teacher or philosopher, in his discretion, when he found any such person having an injurious effect on the youths. Under the direction of the teacher (gymnastes) such kind of gymnastic exercise was selected as seemed best suited to his peculiar constitution. Galen has mentioned these teachers and it appears they were informed as to the physiological effects of exercise upon the body in general, and the best means of correcting physical defects, whether of malformation or development.

Sprengel refers to this topic as follows:

1. "The games of the Greeks had an immediate influence on the art of war, because gymnastics were cultivated for the conservation of health, and as well by the physician to cure diseases. It is for this reason that the gymnasia were consecrated to Apollo, the god of the physicians, and many of the persons employed were of their order. The Alliptes bore the name of physicians, and they treated by this means the lighter ailments."

Herodotus, a pupil of Agathinus, who practiced medicine at Rome in the reign of Trajan, and who was zealous in the pneumatic sect, recommended all the gymnastic exercises, especially horseback riding, in acute diseases, oil baths, swimming in the sea, and mineral waters.

The learned Oribasius, who flourished in the fourth century, who was one of the most elegant of the ancient medical compilers, had very clear ideas on the importance of physical education of children—ideas which are well worthy of attention to-day. He thought the physical education should always precede the mental education.

The famous surgeon, Antyllus, recommended singing as an exercise to develop chest capacity in pulmonary diseases; and in later times the surgeons may fairly claim the credit of bringing gymnastics once more prominently to the front as a remedial measure, and, as a sequence, its modern revival. Ambroise Paré, the great French surgeon, who flourished in the sixteenth century, again proposed massage as a revulsive in cases of wounds of the head, and Sabbatier, in 1772, published an interesting work on ancient gymnastics. No surgeon has surpassed Sabbatier in learning, nor did any in his time surpass him in practical handicraft.

Tissot, of Switzerland, in 1780 published a work entitled "Medical and Surgical Gymnastics.[1]

But it is not intended to include a study of medical gymnastics as within the scope of this

[1] Gymnastique Medicinal et Chirurgicale.

lecture. Suffice it to say, that as a therapeutic resource it has well-defined uses, and we see in the modern *masseur* the enthusiast in this branch. Those interested will be amused and instructed by a glance at Moritz Schreber's little volume, published in London, Edinburgh and Leipsic in 1856. Instructed by some of the measures proposed, and amused at others, such, for instance, as the radical cure of hernia by muscular movements. As for the *masseur* himself, has he not invaded the entire medical territory? With his "Swedish movement," and his mechanical "system," his weights and pulleys, and his little hammer and tongs, he is certainly much abroad in the land. (Pardon this digression — this "excursus," as good old Becker puts it in Charicles and Gallus.)

Let us return to the Greek gymnasia. The same general system was pursued throughout Greece, but whereas in Sparta the gymnastic exercises were looked upon as a necessary basis for the military training and the hardships of the field, in Athens the higher, broader view was taken, that the gymnastic exercises were necessary not only to make expert and hardy soldiers, but as giving strength, beauty and health to the human body, and making it nearer the divine image.

It may be interesting to give a part of Vitruvius' account of the construction of the Greek gymnasium.

I follow Gwilt's translation:

Of the Palæstra (indoor gymnasia):

Though not used by the people of Italy, it seems proper that I should explain the form of the palæstra, and describe the mode in which it was constructed by the Greeks. The square or oblong peristylia of palæstria have a wall around them which the Greeks call "δἰ αυλοῦ," two stadia in circuit. Three of the sides are single porticos; the fourth, which is that on the south side, is to be double, so that when showers fall in windy weather, the drops may not drive into the inner part of it. In the three porticos are large recesses (exedræ) with seats therein, whereon the philosophers, rhetoricians and others who delight in study may sit and dispute. In the double portico the following provision is to be made: the ephebum is to be in the middle, which is in truth nothing more than a large exedræ with seats, and longer by one third than its width. On the right, in the coriceum, immediately adjoining which is the conisterium, near which, in the angle of the portico, is the cold bath, which the Greeks call λουτρον (loutron)."

He then gives technical explanation of the location and construction of the frigidarium (cold room) and the sudatorium (sweating room) and the hot bath, and continues speaking of porticos, which are to be "so formed that as well on the side next the wall as on that where the columns stand, there are margins for paths of not less than ten feet: the center part is sunk one foot and a half from the path, to which there is an ascent of two steps; the sunken part is not to be less than twelve feet in width. Thus those who in their clothing walk around the paths will not be incommoded by the annointed wrestlers who are practicing."

The learned Becker thus takes his imaginary Charicles to a gymnasium:

He found the gymnasium very full of company. In the arcades surrounding the peristyle were groups of men, young and old, engaged in discourse of various kinds. Here a sophist, seated amidst his scholars, was discussing by the method of interrogation the pros and cons of some doctrine of ethics. The large semi-circular bench of marble on which he sat could only accommodate half his auditory, so the others stood in front to catch the wisdom that proceeded from his mouth. Here a rhetorician was making a critical examination of a speech elaborated by one of his pupils. In several places little knots had formed, and were talking of the important occurrences in Asia. News had just arrived from the Macedonian host, announcing the continuance of the siege of Tyre, and some assayed a display of their topographical acquirements by drawing in the sand with their sticks a plan of the city and its position. In the great court many were engaged in all kinds of exercises, while others were already hurrying to warm or cold baths, or annointing their limbs with pure oil in the Elæothesion.

Charicles strode through the Palæstra to the exercise grounds in the open air. Here were several running races, amid loud acclamations of the beholders, who encouraged first one, then another; others stood ready to jump, with the leaping weights in their hands.

And then Charicles, with his friend Ctesiphon, engaged in a wrestling match, and then went to the bath. Charicles' father, we are told, "was averse to the one-sided exertions of the athletæ, yet a sensible course of gymnastics, as well as chariot driving, and the chase, together with the intercourse of learned men, ranked with him as the only occupation befitting a free-born youth."

The Greeks, however, found that the ordinary training in the gymnasia was not sufficient to enable the pupil to win prizes at the festivals where the great national games were celebrated, and a severer course of training was instituted in the palæstra for certain of those who gave their lives to their calling.

They were called athletæ (athletes), and they were the first professionals, for their whole business was to win the prizes at the Isthmian, Nemean, Olympian and Pythian games. Great was the attention bestowed upon the athletæ. The gymnasiarch superintended their exercises in person, and their diet was carefully regulated by the Aliptes. The fact that the "agonistes," or amateurs, could never win as against the professional athletæ gradually resulted in the overthrow of the whole system. The importation of the athletæ to Rome took place in B.C. 186, and they gradually acquired greater and greater privileges. Professionalism, now rightly considered as an obstruction in the path of true physical education, is therefore of very ancient lineage. It is not surprising that when the professionals had absorbed all the honors of the game, we find that the pendulum of public opinion swung away

from enforced exercise, and away from the gymnasia.

THE MIDDLE AGES.

In the mediæval times the golden days of the Grecian Gymnasium seemed past beyond recall, for the age was essentially military, and learning was relegated to the cloister. Travel and the tourney were the essentials. The well-known passage in the "Two Gentlemen of Verona," wherein Panthino discourses of Proteus' education, gives the view taken of the matter:

"He wondered that your lordship would suffer him to spend his youth at home,
While other men of slender reputation, put forth their sons to seek preferment out.
Some to the wars to try their fortune there;
Some to discover islands far away; some to the studious Universities.
For any or all these exercises, he said that Proteus your son was meet,
And did request me to importune you to let him spend his time no more at home,
Which would be great impeachment to his age, in having known no travel in his youth."

Thus Antonio:

"Nor needst thou much importune me to that
Whereon this month I have been hammering.
I have considered well his loss of time,
And how he cannot be a perfect man,
Not being tried and tutored in the world.
Experience is by industry achieved,
And perfected by the swift course of time.
Then tell me, whither had I best send him?"

Panthino then informs Antonio that the Emperor is at court, and says:

"'Twere good, I think, your lordship sent him thither.
There shall he practice tilts and tournaments,
Hear sweet discourse, converse with noblemen,
And be in eye of every exercise,
Worthy his youth and nobleness of birth."

When Hamlet wished his mother, the Queen, and his uncle, to conclude that he was really insane, he could think of no surer way to impress that conclusion upon them, than by telling Guildenstern that he had "lost his mirth," and "had foregone all custom of exercise"—and King John spoke in hypocritical commiseration of Prince Arthur's lack, while in prison, of the "rich advantage of good exercise."

"There are," says Hallam, "three powerful spirits which have from time to time moved over the face of the waters, and given a predominant impulse to the moral sentiments and energies of mankind. These are the spirits of liberty, religion, and of honor. It was the principal business of chivalry to animate and cherish the last of these three, and whatever high, magnanimous energy the love of liberty or religious zeal has ever imparted, was equaled by the exquisite sense of honor which this institution preserved."

The education of the mediæval knights commenced at the age of 7 years. They were brought up in the castle, and there learned discipline and the use of arms. Up to the age of 14 they were pages, and accompanied the superior lord in that capacity. At the age of 14 they bore the title of esquire, and then began in earnest the systematic exercises in horsemanship, and feats of strength and activity. According to Joinville, the youths "thus placed in the centre of all that could awaken their imagination, the creed of chivalrous gallantry, superstition, or honor must have made indelible impressions. Panting for the glory which neither their strength nor the established rules permitted them to anticipate, the young scions of chivalry attended their masters to the tournament, and even to the battle, and riveted, with a sigh, the armor they were forbidden to wear." (Hallam.) The state of learning had gradually declined in Europe from about the sixth century. Tournaments were instituted about the middle of the eleventh century, and we find that their original purpose was to encourage the development of high physical courage and activity. The tournament was the legitimate successor of the Grecian games, and gradually became celebrated with every degree of splendor. The ruler of the realm, whoever he might be, not seldom acted as the master of ceremonies, and often participated in the struggle. The victor was crowned amidst the plaudits of the assemblage, he received the prize at the hands of his lady, while the triumphant notes of the minstrels filled the air. Around him were gathered his companions in arms, with nodding plumes and glittering armor, grooms with gaily caparisoned horses, and men-at-arms with waving banners. No scene so soul-inspiring, no tableau more impressive. Is it any wonder that the age of chivalry lasted so long?

With the revival of learning, there was poured upon the knights a fervent flood of ridicule, doubtless on account of the exclusive privileges of the class, not less than on account of their general ignorance. No one has ever charged the mediæval knights with having a superabundance of learning—Charlemagne himself learned to write late in life—and when knighthood lent itself to vagrancy under the name of "knight-errantry," enfeebled by the general changes going on in European warfare, it finally fell an easy victim to the pen of Cervantes.

MODERN PHYSICAL TRAINING.

At the beginning of this century, efforts were more or less successfully made, in various countries, to introduce gymnastic exercises into the primary schools and into the family. Among those active in this work was the famous Swedish *savant*, Ling. Ling considered man as a dual being, where the soul and the body were mutually reactive according to the diversity of their nature, and he sought to harmonize human existence according to this duality. He conceived a

system of physiological exercise which exercised both mind and body, and to this general theory of Ling may be traced the so-called Swedish system, which has been so popular and useful.

In France, and indeed in Europe throughout, gymnastics have been well taught in the military schools, but only recently systematic instruction for civilians has been advocated.

Physical training in England has never died out since the age of chivalry, but on the Continent, at the end of the last century, it had reached a low estate, particularly in Germany, where there was a marked physical degeneration of the people; a degeneration as marked as in America to-day. Napoleon practically ruled Europe, and back of the German Turners' organization was the firm determination to secure a regenerated country. The theories of Father Jahn were preceded by Montaigne and Rousseau in France, Campe, Salzman, Basedow and Guts Muths in Germany, Pestalozzi in Italy, and Fellenberg of Prussia; but the Germans only seem to have given practical direction to their faith. Fellenberg added military drill to instruction in gymnastics and handicrafts. (Hartwell.) Guts Muths was a pupil of Salzman at Schaepkenthal, near Gotha, where he had a small gymnasium; the gymnasium was based on the Greek model. Guts Muths became an instructor there, and taught until his death in 1839. Guts Muths wrote the Prussian Minister, Massow, urging the introduction of physical education into the schools, as the best means of reviving the military spirit of the people, but the war soon coming on again, the matter was suspended.

Frederick Ludwig Jahn was born August 11, 1778, and the present high development of physical education in Germany is due to "Father" Jahn. Indeed, it is questionable if the present revival of interest in America is not principally due to the establishment of the American turn societies. Father Jahn's idea was founded in the purest patriotism, and his book on German Nationalism, in 1810, was speedily followed by the founding of the "German Confederacy" in Berlin, November 14, 1810. It was a great undertaking to make a union of the German States, and at the same time to work out the problem of the physical regeneration of the people. Under his active efforts, "turnplaces" soon became the fashion throughout Germany, and in a few years every city of importance had its turnplace. In 1816, turn-schools for girls were permitted in Prussia, and Jahn published his work, the "German Turn Art." But the turners were growing too strong, and as courage is the expression of conscious strength, some of the turners were too bold in their political sentiments, and in consequence, an official war was declared against them, and in 1818 the turnplaces in Breslau and Liegnitz were closed, and in July, 1819, Jahn himself was arrested as a "demagogue" and brought to Spandau. The turnplaces were for a short time placed under police inspection, but on the 2d of January, 1820, turning was forbidden throughout Prussia. In May of that year, Father Jahn was released from rigorous confinement, but was restricted to the limits of the fortress of Collberg. Jahn's friends were powerful enough to finally secure him a trial, and on December 12, 1825, he was acquitted by the Supreme Court, at Frankfort-on-the-Oder, but the ministry still pursued him. He was put under bonds, and was forbidden to settle in Berlin or within ten miles of its limits. October 14, 1833, Bavaria had many turnplaces, and a ministerial order announced that "Turn-verein have been established, songs of liberty are being sung; this is very dangerous. Teachers beware." In 1837, turning was again allowed in the Prussian gymnasiums, and in 1840 Jahn was unconditionally released, and just before Christmas he received from King Frederick IV the Order of the Iron Cross of the second class. The turn schools grew and grew, until so well established in popular favor that, by a ministerial decree of January 7, 1844, obligatory turning was introduced into the common schools of Prussia. Two years later, turn schools for females were ordered to be established. The skies seemed bright for the followers of Jahn, but there was the "little cloud no larger than a man's hand" in the horizon. The Frankfort turn-verein was closed by order of January 4, 1848, as alleged, on account of its tendency towards republicanism, and the ministry, with evident purpose of controlling the turners, erected a central school for Turn teachers, at Berlin. But there had already been conflicts of the Kiel students, near Bau, and in Hanau, the German social democratic turn-bund had been founded on the second turnday of the first turn assembly. But the precipitation of the Revolution of 1848 resulted in the exile of many of the leading turners, their emigration to America, and the foundation of turn societies in Cincinnati and New York in the same year. In 1849, the Philadelphia Turn Society was founded, and the societies at St. Louis, Boston, Louisville and Williamsburgh. Later in the year, the American Turner-bund was founded—the avowed object of the "bund" or confederacy being not only the promotion of corporal exercises known as turning, but the promotion of liberty, the welfare and education of all classes, and the extension of turners' societies. That this first turner-bund sympathized heart and soul with the Prussian revolutionists is evident from the fact, that the German women of Cincinnati made a black, red and yellow banner, to be given to the first German State that would be declared a Republic, but the banner was finally committed to the custody of the Cincinnati turn society. October 25,

1852, the "turn father," Frederick Ludwig Jahn, died, at the advanced age of 74, having lived to see the great advance in gymnastic exercises, and having a clear perception of the coming glories of his Fatherland.

With the exception of the "Know Nothing" excitement, the course of turning has run smoothly in the United States, and at this time there are more than 30,000 turners in the United States, and about 260 turn societies. Their watchword is still liberty and education for all, and although we wish they would use English as their official language, I am convinced that their influence is always for the welfare of our common country. In our civil war, the German turners stood solidly for the Union flag, and their valor was attested on many a well fought field. On January 1, 1861, the St. Louis Turners resolved to found a military organization "for the protection of union and liberty," and a week later the Washington Turners organized a shooter's section to help defend the Capital against the secessionists, and the St. Louis, Cincinnati and New York Turn societies were nearly all sworn in the United States service on the first call for troops.[2] We who reap the benefits of the patriotic ardor of 1861, should not give scanty praise to these stalwart men—they deserve our warmest thanks and commendation. Their courage and valor is well shown by the New York Turner regiment, which marched out of that city in 1861, fully 1,200 strong, and when it returned there were only 460 left; more than half the number were killed in battle, perished as prisoners of war, or victims of the deadly malarial emanations from the Southern swamps. The historic volley fired by the Ninth Ohio (turner's) regiment, at Mill Springs, Ky., January 20, 1862, inaugurated the first victory of our western armies, and laid the foundation of the fame of General George H. Thomas.

But while turning affords our fellow-citizens of German nativity healthful amusement, and inspires them with principles of liberty and patriotism, it is by means of similar organizations, that the native element must keep its place, and perform its duty. It is at this time a patriotic duty to form gymnastic schools and athletic clubs, and by all means at our command stay the tide of physical degeneration that is destroying American manhood and womanhood.

The great colleges are doing their utmost; gymnasia are being equipped everywhere, and youths leaving college may now find in nearly every city a well furnished athletic club.

I fully agree with a recent editorial in *Outing*, to the effect that our modern athletic club houses combine all that is best in the Greek gymnasia with the more luxurious fashions of the Romans, and that, owing to the exigencies of our climate, we must have houses. The Greek simplicity of costume is neither adapted to our fierce summer heat, with sudden changes of temperature, nor to the winter blasts, that come from our northwestern prairies.

Much might be done by hardening from constant exposure, as all history tells us.

When a certain king waged war on the Scythians in midwinter, he found members of their hardy warriors almost naked.

"How can you withstand this bitter cold without clothing?" asked the king of a captive.

"Why do you not cover your face?" replied the Scythian.

"My face is not accustomed to be covered; the skin is hardened," good-humoredly answered the king.

"Sire, we are all face," said the Scythian.

The hardening process we may then admit as possible, but is the game worth the candle? The æsthetic fever is upon us, and let us stick to our houses, and build them as fine as we conveniently can. Let us extract all the dulcet liquid from the orange while it is still juicy, and have some pleasure in life while growing in strength and brawn.

But what are we doing for the young children? A few western cities, under the directly stimulating examples of the turners and the athletic clubs, have begun to establish gymnasia in connection with the regular instruction of the school, and paid teachers of gymnastics have begun to be employed, notably at Chicago and Kansas City; but the melancholy fact remains that the majority of our primary schools are absolutely without any provision for the most elementary physical training. The primary school should be the place where the body is made to grow straight, where all the muscles are exercised properly, and where the young, tender brain is nourished by blood made healthy through active circulation. The colleges are doing good work with the youths and young women, and the clubs and turn societies maintain and keep up the physical standard thus acquired, but the college instructors should have youths sent them with some sort of preliminary physical training. At the preparatory school he begins his classics, his mathematics and physics. Why should he not also begin his physical training at the preparatory? Not only would the results be more perfect when thus commenced, but when we remember that the majority of our youth do not enter college at all, we then realize that unless the primary school be made the place of beginning, the work is never commenced.

When one sees the sickly, stoop-shouldered, knock-kneed, feeble children attempting to become educated men and women, there is no longer reason to wonder at the marvellous in-

[2] Among the German Turners' regiments may be mentioned the Ninth Ohio, Thirty-second Indiana, Twenty-fourth Illinois (Hecker's), and the First, Second, Third and Fourth Missouri. Milwaukee also sent a turn regiment.

crease of our insane. Every State in our Union has to annually increase the accommodations for the insane, and if this necessity were confined to those States where the population increased with equal pace, it could be accounted for; but we see those States in which there is no increase of population year after year adding to the insane class. This is largely the result of physical degeneration, as shown in flabby muscles, disinclination to exercise, and unhealthy blood. We want no *class* improvement, but we want universal attention to physical training from childhood to adult life; and until the State governments take up the matter as a patriotic duty, we must encourage private gymnasia.

The physical retrograde condition of our native stock cannot be corrected by encouragement of professional athletes. It is well to have a Sullivan to show what may be done by one-sided cultivation, as a specimen of magnificent muscle; a Winship to teach us the physical fact that a man's lifting power can be increased to an almost incredible degree; but these are not the kind of specimens after which to fashion a race. Let us have the highest types of beauty, deftness and strength, combined with mental vigor and chivalrous virtue. Let us have women like her of whom the poet said, "Grace was in all her steps, heaven in her eye; in every gesture dignity and love." And let us have strong men. Let the medical students of this college set the example. Your strong, healthy, vigorous man is never irritable, never "nervous;" he is generous, and he sleeps at night. He is worth something to his country and to all mankind. He exercises his muscles, the blood flows freely in his veins, he is hungry, he digests his food, his brain is nourished, and his mental faculties are active. He lives, and the world is better because he lives. I love to look at a bright, happy-faced man, who takes a full breath and expands his chest; who looks at the rising sun without blinking, and whose face glows with the animation lent it by a pure soul, unvexed by an irritable body. Think what glorious soldiers a regiment of such men would make! How the arts and sciences would flourish under the general stimulus of strong America! Our beloved country would indeed become blessed. Our new America, strengthened by exercise, made happy by good health, might easily outshine the glories of the golden age of Greece, and, "like precious stone set in silver sea," flash its beauty to the sun.

DR. FREIDRICH SCHANTA, of the University of Prague, succeeds Prof. Carl Braun in the chair of Midwifery in Vienna. He is the author of a manual of operative midwifery and numerous lesser works.

SOCIETY PROCEEDINGS.

CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.

The Second Triennial Meeting of the Congress of American Physicians and Surgeons held in Washington, September 22, 23, 24, and 25, 1891.

General Session.

TUESDAY—FIRST DAY.

The Congress was called to order by the chairman of the Executive Committee, DR. WILLIAM PEPPER, who introduced the president, DR. S. WIER MITCHELL, of Philadelphia.

The first scientific matter brought before the session was the discussion on

CONDITIONS UNDERLYING THE INFECTION OF WOUNDS,

Including a Discussion of Disinfection with Reference to Treatment of Wounds, of the Relation of Bacteria to Suppuration, of the Resistance of Tissues to the Multiplication of Bacteria, and of the Effects of Antiseptic Agents on Wounds.

The discussion was opened by

DR. WILLIAM H. WELCH, Baltimore, Md. That the presence of certain kind of bacteria is an essential condition of wound infection is so well established that discussion of this point is not likely to arise. The comparatively simple conception that a wound to which bacteria gain access, necessarily becomes infected, has been greatly modified. The traumatic infection present their own peculiar problem. The doctrine of wound infection involves the consideration of many varying and often complicated factors relating both to the agents of infection and to the individual exposed to the infection.

The subject was considered under the following heads:

1. What are the microörganisms concerned in the infection of wounds, and how do they act?

2. How are we to explain the great differences in the effects produced by the pyogenic micrococci; their apparent harmlessness under some conditions, their fatal influence in others.

3. What are the ways by which bacteria gain access to the wound?

4. How often are bacteria to be found in wounds treated antiseptically or aseptically. What are the character of these bacteria and where do they come from?

5. What are the best means of surgical disinfection?

The observations as to the relative frequency of the ordinary pyogenic staphylococci and streptococci are not altogether concordant. The yellow staphylococcus appears to be more common in furuncles and abscesses than the white staphylococcus.

The author had found a white staphylococcus in small stitch abscesses and minor grades of inflammatory disturbance in wounds treated antiseptically and aseptically which differs in certain particulars from the staphylococcus pyogenes albus. He suggested that it be called the staphylococcus epidermidis albus. The efforts to differentiate into distinct species the pathogenic streptococci have met with little success. The list of bacilli which may be concerned in suppurative and other inflammatory affections is much longer than was formerly supposed. The bacillus *coi commonis* was referred to. The chief interests of the observations being that they furnish an illustration of the possible predisposition to infection afforded by intestinal lesions, and also give an example of the much disputed autoinfection of the suppurative inflammations examined bacteriologically with negative results.

There is reason to suppose that the process of suppuration serves a useful purpose and is one of the most efficient weapons employed by Nature in combating invading microörganisms. Exactly how the abscess formation checks the invasion of bacteria, we do not know.

The quantity of a culture of the staphylococcus aureus required to produce suppuration is not the same for all tissues and all parts of the body. There are also variations in virulence of different cultures of the pyogenic cocci. Inasmuch as it is by their toxic products that the pyogenic bacteria do injury, it is not surprising to find that it makes a great difference in the result whether or not these bacteria enter the tissues already equipped with a reserve force of this poisonous material, or whether it must begin the fight unarmed. This matter of accompanying toxines is possibly of great importance in our understanding of the potentialities of the living agents of wound infection. The differences in virulence found to exist between inflammatory exudates from various sources are much greater than those observed in the cultures of the same bacteria on artificial media.

In regard to the conditions in or about a wound which favor the lodgment and development of pyogenic bacteria, it may be said that anything which interferes with the integrity of the living tissues in a wound is a predisposing cause of suppuration. Chemical irritants, such as carbolic acid and corrosive sublimate, favor the development of microörganisms. A solution of corrosive sublimate as weak as one to two thousand is followed by a distinct line of superficial necrosis. We are not so well informed as to the influence exerted by blood in a wound. Most surgeons lay great stress on hemostasis in surgical operation, while others advise that in certain classes of cases the wound be permitted to fill with blood clot. Is this a source of danger? Fresh blood serum does not possess any such germicidal power over the pyogenic cocci as it does over the typhoid and many other bacteria. The power of the living tissues to overcome a certain number of pyogenic bacteria is well recognized, and the tendency of modern surgeons is to respect those tissues more and more, not to destroy their vital capacities by the unnecessary application of strong chemical disinfectants, not to bruise them, not to make them too terse, not to strangle them, not to suffer the presence in wounds of spaces and foreign bodies which remove bacteria from the influence of the living fluids and tissues.

Of the various ways in which pathogenic bacteria gain access to wounds, that by contact with infected hands, instruments and other objects, offers the greatest danger. The possibility of infection from the air cannot be ignored. Even in wounds treated aseptically or antiseptically it is not uncommon to find bacteria. The skin may have all sorts of bacteria upon it, but in addition it has its own distinctive bacteria. After the skin has been thoroughly washed and scrubbed the prevailing organism will be found to be the white staphylococcus. This is often found in parts of the epidermis deeper than can be reached by any known means of skin disinfection. We can now understand how, without any flaw in the antiseptic technique of the surgeon, this microörganism may be found present in wounds, and we have here an explanation of the frequent occurrence of stitch abscesses, although the inference should not be drawn that the white staphylococcus is the only bacterium concerned in the production of these annoying complications. How much practical importance attaches to the demonstration of this coccus the author was not prepared to say. The surgeon with good technique who does not bother himself about this coccus in the deeper layers of the skin, is not likely to be severely punished by the behavior of his wounds. Those who put in drainage tubes and other extraneous substances will have to consider it. Some surgeons, on the basis of researches on the bacteria of the skin, have abandoned skin sutures, the edges of the wound being brought together by subcutaneous sutures.

In regard to the methods of surgical antisepsis it was said that the conditions for efficient chemical disinfection have been found to be far more complicated than was formerly supposed, and the substitution wherever applicable of the simple and certain methods of disinfection by heat is to be commended. Chemical disinfectants still have their place for many purposes in the operating room, but their place is not in healthy wounds. Thorough scrubbing of the skin with soap and water by a sterilized brush removes many of the bacteria, but not all, and cannot be regarded as satisfactory means of cutaneous disinfection. Corrosive sublimate accomplishes

much less than is generally supposed. The best results obtained have been by a method in which a saturated warm solution of permanganate of potassium, followed by a similar solution of oxalic acid, plays the principal disinfectant rôle, and this is the procedure now adopted in the gynecological and surgical wards of the Johns Hopkins Hospital.

Dr. ROSWELL PARK, of Buffalo, N. Y.

The study of wound infection is inseparable from that of immunity, and when we have learned that which constitutes or favors immunity we shall approach nearer that which is now a terra incognito. Immunity is a complex condition not dependent upon any single factor, and from pathological interest as well as from clinical importance, our endeavor now must be to analyze the main question of what constitutes or confers immunity, and try to recognize and then solve its various subordinate queries. This statement, too, is inseparable from another, which is to the effect that the surgery of to-day should aim to be aseptic, and not merely antiseptic. In other words, we should abolish sepsis, and not merely aim to antidote it or conquer it when present. The condition of sepsis is a complicated one, consisting of a poisoning by ptomaines, toxines and albumoses having widely different properties. Some of these substances are so antagonistic that one may neutralize the other. In the intestinal canal there are produced poisonous substances which are taken up by the absorbents, but then are filtered out by the liver before reaching the systemic circulation. It is by virtue of this depurative action of the liver that many cases of septical intoxication in surgical patients are avoided. In a division of the general subject of blood poisoning, a condition which may be called intestinal toxæmia or entero-sepsis deserves a distinct place. This occurs not infrequently and may merge into a condition of sapræmia or septicæmia; but, if promptly checked, there is a speedy return to a desirable condition both of wound and patient. . . . By no means do all cases of surgical sepsis have their origin in or about the wound.

We have learned a little in reference to the antagonism of different bacteria and the poisons which they produce. A microbe may enter the system and produce a proteid or albuminose poisonous to the animal, while the introduction of some other substance may neutralize this poison and save the animal. The principle is the same whether the antidotal poison be injected as such, or a second species be inoculated by which it may be produced. Brunton has suggested that blisters do good in this way, by an endermic administration of proteids derived from the blood, but so altered in their passage from the vessels as to have a different effect, and probably by their chemotactic properties. He also suggests that bleeding may act in a similar manner, as it has been shown that the abstraction of venous blood causes an absorption of proteid matters from the tissues, and these may have an action of their own on the tissues with which they come in contact. The benefits of free purgation probably find here their proper explanation.

The term chemotaxis, to which reference has been made, relates to that faculty possessed by all motile bacteria of moving towards or away from certain substances which seem to attract or repel them. The same power is inherent in the plasmodia of maxomycetes, as well as in various other unicellular organisms; and leucocytes, if not other cells of the human body, possess the same property. Chemotaxis is spoken of as positive or negative, as there appears to be attraction or repulsion. Among the most actively positive chemotactic substances are cultures of bacteria. These are powerfully attracted by the leucocytes. The effect is the same, whether the cultures are alive or have been killed by bottling. The active agent is some product of the life and growth of the bacteria. The leucocytes thus attracted act as scavengers for the surrounding tissue.

These facts have an important bearing upon questions which vitally concern the surgeon. In the light of these researches, it is difficult to see how the possibility of phagocytosis can be denied, and the impossibility of this process looms up in a flood of light when one discusses the phenomena of suppuration or of other kinds of infection, as well as of recovery or immunity therefrom. Support of the phagocyte theory has come from the work of Hankin on "Defensive Proteids." From the spleens and livers of various animals he has isolated the proteid, which has the power of killing bacteria, and he has found that this, while absent from normal blood, could be obtained from the blood of fibrine animals.

The separation of dead and dying matter is a process in which the formation of proteid material figures largely. An important bearing of these facts is on the use of so-called antiseptic agents. The ideal antiseptic is probably blood serum, its parasiticide properties being, in all probability, connected with the existence in it of a globulin which is soluble only in a weak solution of common salt. This may explain the well-known antiseptic action of common salt.

It has been stated that by no means all the sources of sepsis concern the wound itself. The other principal sources of infection may be classified as follows:

1. Previous long-existent toxæmia, as syphilis, diabetes, acetohemia, lithæmia, alcoholism, malaria.

2. Previous anatomical changes which reduce vitality, as inherited diatheses, old age, amyloid change, chronic and acute nephritis.

3. Recent or acute toxæmia, as uræmia, typhoid, intestinal toxæmia, sterconal toxæmia.

4. Other acute conditions, as starvation, scurvy, anæmia.

5. Conditions of environment, as bad hygienic surroundings.

6. Effect of anæsthetics.

7. Effect of antiseptics.

Antiseptics may favor infection in more than one way. Mercurial and iodoform poisoning are not uncommon. When this is established, the case becomes one of acute toxæmia. The wounds may fail to unite, and suppuration may occur again, or the chemical reaction between the vital fluid and the antiseptic may cause a loss of the properties of the antiseptic agent, while the tissues on which it acts may have their constitution so changed as to favor rather than resist infection. Investigations make it appear best to keep all antiseptic agents away from absolutely clean, fresh surfaces. The value of blood serum as an antiseptic has been abundantly shown. This will be poured out in quantity sufficient to serve not only as a cohesive, but as an antiseptic agent. The question here arises as to what is the best antiseptic. It would appear that for most purposes peroxide of hydrogen is the ideal antiseptic, as it not only merely destroys living organisms, but by oxidation of undesirable and infected material, acts as a scavenger of the tissues. We, however, have yet to learn how to utilize to the fullest advantage the properties of blood serum.

Direct infection may be of two varieties, self- or auto-infection, and contact infection. The principle sources of contact infection are as follows: 1. Skin and hair. 2. Instruments. 3. Sponges or their substitutes. 4. Suture materials. 5. The hands of the surgeon and his assistants. 6. Drainage material. 7. Dressing material; and 8, Miscellaneous, *e. g.*, drops of perspiration, an unclean irrigator nozzle, the nail brush, the clothing of the operator or bystanders, etc.

The best plan of sterilizing the skin is shaving, followed for a day or two, if there is time, by some antiseptic ointment, properly prepared. The skin should then be washed with sapo viride of the German pharmacopœia, with five per cent. of lysol or hydro-naphthol. Then there should be worn until the time of operation a compress, wet with some liquid non-irritating antiseptic, such as creolin or lysol (five per cent.), or hydro-naphthol in saturated cold aqueous solution. At the time of operation there should be a final scrubbing with hydro-naphthol soap, with shaving, and then the skin washed with equal parts of alcohol and ether, or alcohol and turpentine. Where there is not time for this, we must content ourselves with the thorough use of the nail brush, the razor and antiseptic soap, with the subsequent use of alcohol and ether.

Instruments are best prepared by dry sterilization, as this injured them less than other plans.

In regard to sponges, there is nothing to be added to the well-known directions. It would seem better to use some cheap absorbent material which, after use, could be thrown away.

Silk is best sterilized by placing it in a test tube, then plugging, and keeping for an hour in a steam sterilizer upon two different occasions. Silk-worm gut may be prepared by immersion for a few hours in a one-per-cent. aqueous solution of corrosive sublimate, and then preserving in alcohol. Catgut is best prepared by immersion in benzine or ether to remove fat. It is then dried and soaked for one or two days in a one per cent. watery solution of corrosive sublimate, after which it is dried and transferred to oil of juniper berries, and from this to strong alcohol containing one permille of sublimate. In this, if desired, it can be boiled. It may be chromicised before putting in the oil of juniper.

The hands, even after having been in contact with septic matter, may be sterilized by the following method: Wash with soap and water, using nail brush. Then wash the hands and arms with flour of mustard, as though it were powdered soap. This will remove all odor. Then wash with sapo viride (G. P.), to which has been added five per cent. of lysol, creolin or hydronaphthol. Then rinse, and immerse in a strongly colored solution of permanganate of potassium. They are then rinsed and immersed in a solution of oxalic acid sufficiently strong to decolorize the skin in two or three minutes. The oxalic acid is rinsed off, and the hands may be considered aseptic.

Drainage is probably required only in septic or infected cases.

After an ideal aseptic operation, we need only a sterilized and a protective dressing. In some cases there may be advantage in impregnating the dressing with some antiseptic.

Among miscellaneous sources of infection may be mentioned the use of an unguent applied to the skin to prevent the adhesion of dressings. Experiments have shown that ointments made with even ten per cent. of resorcin or naphthalin, without the application of heat, contain bacteria. The same ointments, heated to the temperature of boiling water, seem to be sterile, and to suffer only from air contamination.

DR. PARK presented the following conclusions:

1. Study of wound infection and of the septic condition thereby produced is inseparable from a study of what constitutes immunity.

2. By a study of immunity is furnished the best clue to a due appreciation of the principles of asepsis.

3. The surgery of the future must aim to be

aseptic, for so far as fresh cases are concerned, we have passed the merely antiseptic era.

4. Asepsis is to be achieved not alone by attention to the wound and the paraphernalia of operation, but by the closest regard to the condition of the patient's organs and tissues.

5. Sepsis may arise from circumstances and conditions other than those pertaining to the wound itself, although hitherto, practitioners have been too prone to scan solely this field when searching for its cause.

6. Sepsis and infection are combatted in more than one way by natural agencies and by inherent properties of cells and fluids totally aside from the measures which the surgeon institutes, and the wisest man is he who studies to take advantage of these vital activities rather than introduce new and conflicting elements from without.

7. A recognition of the power of chemotaxis possessed by organized and unorganized materials in such varying degree can be utilized to great advantage so soon as it can be reasonably clearly defined.

8. A study of chemotactic activity appears to impress one with the truth of the phagocyte doctrine, which if proven, is one having a large bearing upon the principles as well as the practice of the surgery of the future.

9. The proteid material contained within cellular infectious organisms both plays such a rôle in causing chemotaxis as well as in poisoning the animal infected, that we have reason to eagerly welcome all knowledge concerning it.

10. So fast as such proteid material can be isolated, we need among other things to study its effect upon the commonly used antiseptic agents.

11. We need to study much further the antitoxic and bactericidal properties of human blood serum, and the means by which we can avail ourselves of the same.

12. Some such classification as I have attempted to give of the various causes of lowered resistance to infection, or of the causes of vulnerability or susceptibility, will certainly assist in a due appreciation thereof, and will often aid in so fortifying the patient that he may resist infection to which he would otherwise succumb.

13. The condition of enterosepsis, fæcal toxæmia, stercoreal intoxication or whatever it may be called, is certainly one which every practitioner has to fear and against which he should assidiously guard. It is not sufficiently generally recognized and combatted.

14. A sub-form of this condition might justly be made and entitled gastro-sepsis, comprising cases where defective stomach digestion often from dilation, brings about a lithæmic or other toxæmic condition which favor infection.

15. Antiseptic agents in the past have worked a revolution in surgical practice and results. We have now reached a time when we know that they all have their disadvantages and also understand how, if we are strictly antiseptic in our work, we can afford to discontinue their application to wound surfaces.

16. But the insurance of aseptic character of such work, necessitates the use of antiseptic agents of some kind upon everything which may directly or indirectly come in contact with these surfaces.

17. When this work is strictly aseptically performed, the use of drains or further employment of antiseptics, is either an expression of mental uncertainty or of fear. It may be in the interest of humanity, undoubtedly it often is, but it is not attaining the ideal of scientific work.

Dr. Arthur T. Cabot, of Boston, referred to the debt which practical surgeons owed to the scientific workers. It is the knowledge of how to obtain aseptic wounds that has revolutionized surgery. Reference was next made to the phagocytic action of the cells, and to the germicidal action of the blood serum. The only question is as to which of these processes is distinctly destructive. The bactericidal action of the blood serum has been proved. These observations may serve to explain some of the phenomena in wound fevers. It may be that in erysipelas, the irritation set up by the application of blisters, iodine, etc., may serve to limit the spread of the disease by the action of the blood serum on the micrococci of the disease.

In treatment of wounds, it is desirable to avoid placing animal sutures in the wound. It is better to close all spaces in the wound by pressure. He had found by culture experiments that where the skin, prior to the operation, was free from organisms, yet at the close of the operation their presence could be demonstrated, showing that bacteria had been sown on the wound by the air or otherwise. If necrotic tissue or animal sutures be present, they might constitute a nidus for the development of the bacteria.

Mr. Thomas Bryant, of London, said that if bacteria are the seed, we must remember that the soil is not of less importance. If the soil is not suitable for the growth of the seed, it will not grow. No surgeon would operate on a patient, except in a case of urgency, until the subject had been prepared for operation. In order to prevent the entrance of the germs, irrigation is of service. For this purpose iodine water, made by adding a few drops of the tincture or solution of iodine to water, is the most valuable. This may be made of a light cherry hue for clean wounds, and of a dark cherry for dirty wounds. It also acts as a good styptic. As a dressing he uses wood wool. The wound is dusted with iodol, 1 part to 1 to 5 parts of boracic acid. In every operation there is a certain amount of molecular death, and drainage is required for thirty-six

hours. Pressure is better than deep sutures for bringing the deeper parts of the wound in contact.

DR. HAROLD C. ERNST, of Boston: While it is true that nearly all forms of suppuration are attended by bacteria, yet it has been shown that a process answering to suppuration can be produced without the action of bacteria. The products of this suppuration, however, do not produce activity when introduced into other animals. It has been shown that some of the agents used to destroy bacteria really favor their growth, by diminishing the chemotactic power of the surrounding tissue cells. Notwithstanding laboratory experiments show the possible occurrence of chemical suppuration, it still remains to be demonstrated that the infection of wounds as seen in practice occurs without the influence of bacterial activity. The most important lessons taught by investigations in this subject are those which warn us that our pupilage is not yet over, and that we are but entering upon the first stage of our knowledge of the processes spoken of here to-day.

MR. JOHN CHIENE, of Edinburgh, said that he had assisted Professor Lister during the whole of his time in Edinburgh. The longer he lived, the more he believed in the work of Lister, and the impress that he had made on surgery. He considered the bacteriological investigations as of the greatest importance, for on these the surgeon must depend in his daily work. Lister long ago spoke of the antiseptic value of the blood clot, but long before, John Hunter pointed out the value of the blood clot. The speaker considered that the spray was of great service. The term "integrity of the tissues" had been used by both speakers, but John Hunter had also laid stress on the vitality of the tissues, which he defined as "the power of the tissues to resist putrefaction." He thought that not only by improving the soil, but by destroying the plant, the best results would be attained.

DR. ARPAD GERSTER, New York, spoke of the many sources of contact infection, and referred especially to infection the result of bad habits on the part of the surgeon. The surgeon may carry out all the details of aseptic and antiseptic treatment, and yet nullify all by a habit he may have of rubbing his nose, his hair or his face; or, as the speaker had seen, placing the knife in his mouth that he might use his hand. An important point in the prevention of infection is clean dissection with the knife, without tearing or bruising the tissues. In regard to irrigation and drainage, he said that these could be eliminated only where the surgeon was absolutely certain of his asepsis, and thought it dangerous for the general practitioner to discard drainage. If he is not certain of his asepsis, he should cling to the older methods, and from these he may ascend to the highest pitch of skill when he can work with real asepsis.

WEDNESDAY, P.M.

DR. P. S. CONNER, of Cincinnati, Ohio, read a paper on

THE LATE MANIFESTATIONS OF SYPHILIS.

More than any other disease, not excepting tuberculosis or cancer, syphilis is the common meeting ground of us all, physicians, surgeons, obstetricians, specialists, pathologists, sanitarians. Modified by transmission through a dozen generations, it is still a dreadful and dreaded ill. Were there only the early lesions, syphilis would take place among the minor ills, and this is the history in the large proportion of cases. Probably in three or four out of five of the acquired cases, the disease is short lived and does but little damage. There is, however, no means of saying in any individual that in a few months or years the disease will be eliminated. Those syphilitic by inheritance suffer from late lesions in far greater ratio than the acquired cases.

There is no sharply defined line between the early and the late constitutional symptoms. Speaking generally the late lesions are neo-formative, the early hardly ever so; so that the gumma is the sign and seal of the tertiaries. Further they are not communicable. As a rule, they are quietly developed. No region or organ is exempt from invasion with resulting new growths. Of most frequent occurrence are the affections of the bones and of the nervous system. The lesion of the bone may be single or multiple. The symmetrical involvement of bones is exceptional. Liquefaction is rarely observed and suppuration only an accident. As ordinarily seen at the present day, extensively destructive and deforming bone inflammations are almost confined to the head and the nasal regions. The reason of this is probably the exposed position of the bones, the thinness of some of them, the abundance of small vessels and the intimate fusion of mucous membrane and periosteum. In the adult and acquired there is seldom difficulty in recognizing the specific character of the lesion.

Though a large proportion of chronic bone and joint disease in the child, the adolescent and the young adult is tubercular, yet the cases in which it is syphilitic are by no means few. This may be recognized by the location of the disease, by recognition of traces on the cornea, the teeth and the skin, by application of the therapeutic test and when practical, by inoculation.

The most frequent and the most dangerous lesions are those of the nervous system. Dr. Horsley in speaking of cerebral gumma, declared that "medicinal treatment in no wise cures and only very temporarily alleviates the trouble. . . . . Excision offers the only chance for the patient." Is this the fact? Has not more than temporary alleviation followed the use of the iodides? However great the advances of brain

surgery in the last few years, would not the outlook of the syphilitic be worse than it is, if only in the removal of the gumma could be found a chance of recovery? The affections of motion, sensation and intellection are frequent in the order given. The first at some time and in some degree is present in every case. Hysteria may mimic syphilis. It is infrequent in men, while brain syphilis is rare in women. In brain syphilis, paralysis is more common than convulsions. Sensation frequently remains unaffected. Disturbance of intellection are almost necessarily associated with any brain lesions.

In certain cases, although rare, marked motor, sensory and intellectual disturbance occur suddenly and together. Ordinarily after sleep, the patient is found in a state of stupor, from which it is possible to rouse him partially. The muscles are relaxed. The pulse rate is decidedly lessened, the breathing is slow and the temperature is subnormal. Under mercurial treatment, promptly and persistently maintained for many months, relief even permanent may be expected and secured.

Spinal lesions are of infrequent occurrence. Exostoses of the spinal canal may occur and neoplasms develop. There may be pain and paralysis affecting different parts according to the location of the lesion. A question of much interest is the causative relation of syphilis to locomotor ataxia. That the majority of ataxics have had syphilis cannot be questioned. Tabes is certainly not of true gummatous origin, nor can the sclerosis be regarded as the result of the diffused formation so often found in the cerebro-spinal axis, as in other parts of the body. Syphilitic treatment generally fails to cure or even to retard the evolution of symptoms.

There are many things about late syphilis that deserve careful study. What is the explanation of the long years of intermission with the after development of grave functional and organic disturbance? Where has the disease been lurking all these years.

What are the relations of syphilis to other diseases and to injuries? Pre-existing tubercular disease renders probable a more severe and often a more rapid syphilitic course. To the "strumous" individual the specific infection is more dangerous than it is to others. That specific lesions may become tuberculized has been proven, but only rarely does the tubercle bacillus find a nidus in and about a syphilitic new formation. Syphilis is not likely to be inoculated on a person suffering with cancer, and if it is there is no good reason why the two diseases should not each go on in its natural way. On the other hand, cancer may and not so very rarely does attack an area in which there has long been specific thickening and induration, as in the chronic leucomata of the tongue. Once in awhile a gumma undergoes cancerous degeneration, more often when situated in the tongue than elsewhere. The local affection, no longer amenable to specific treatment, goes on steadily from bad to worse. In certain localities, especially in the breast, a gumma may readily be mistaken for a cancer. If syphilitic growths do not become sarcomatous they often resemble carcomata, and many reported successful operations for the malignant affection has been really one in which a gumma has been removed.

As a rule the wounds of syphilitics, when the disease is in a latent stage, heal as promptly as in other cases, although union may be delayed or even prevented until after the patient has been brought under the influence of the anti-specific remedies. This is less true of wounds of the soft parts than that of the hard parts, as fractures, where at times false joints will form in spite of the most judicious treatment. When the special lesions are in the process of evolution the chances of interference with proper repair are not few, and no operation should be done at this time which can be postponed. Indeed, at any time before doing an operation, the success of which depends on primary union, it is well to keep the patient for several weeks under the influence of the iodides and mercurials. Very rarely does any wound become actually syphilitic. In one who has had the disease, although there have been no manifestations for years, any traumatism may be the starting point of extensive specific lesions.

In very many cases of aneurism under 40 years of age the lesion may be consequent on syphilis.

The mortality rate of acquired syphilis is rare. In its inherited form the disease is a very grave one. Four-fifths of the pregnancies terminate prematurely.

Dr. Abner Post, of Boston, co-referee: In speaking of syphilis, he spoke from the standpoint of the clinician and student, and not from that of the pathologist. He called especial attention to what is known as late hereditary syphilis. This relates to those who have inherited the disease, and only after a lapse of years show symptoms corresponding to the tertiary symptoms of acquired syphilis. The later forms of acquired syphilis are not necessarily a part of the case. The so-called late lesions occur much earlier in the history of the disease than we are in the habit of thinking. After the third year, the chances of a recurrence grow steadily less. As a preventive of late symptoms, early treatment by mercurials must be ranked high, but no method will allow us to promise a cure that is absolute immunity from subsequent attacks.

The different systems were taken up in order. Induration and enlargement of the lymphatic glands is one of the common symptoms of early syphilis. In late hereditary syphilis the part played by lymphatic is great.

Cutaneous lesions are second in frequency to the lesions of the nervous system in late acquired disease.

Diseases of bones were next referred to. A difference between tuberculosis and syphilis lies in the preference of syphilis for the long bones and their shafts, while tuberculosis attacks by preference such bones as those of the wrist and ankle. Disease of the joints are at times undoubtedly the result of syphilis.

Reference was next made to intestinal and gastric symptoms in syphilitics. It is fairly well established that very serious lesions of the gastro-intestinal tract may take place. As one of the possible causes of disease of the ileo-cæcal valve, syphilis must be given a certain amount of consideration.

In diseases of the nervous system there is a large field which lies practically unexplored in congenital syphilis.

An interesting question is, How much influence should a negative history have in a doubtful case? There are many cases in which the existence of syphilis is not known by the patient.

Every prognosis must be a matter of special consideration. It is the persistence of the damage, and not the specific lesions, that cause the persistence of the symptoms. There is something to be deduced in the matter of treatment. Anti-syphilitic treatment has great power over the active process of late lesions, but it is powerless to restore the tissue already destroyed. The attempt to destroy a syphilitic tertiary sore is in general futile. The late lesions of inherited syphilis are as readily controlled as those of acquired disease. The amount of iodides that may be administered is very large. In regard to treatment as an aid in retrospective disease, too much value must not be placed upon this element in doubtful cases, for mercurials and iodides do have some influence over tuberculosis.

The study of syphilitic phenomena is a necessity of medical progress. The possibility of syphilis renders uncertain the diagnosis of tuberculosis and cancer, and other malignant forms of disease. We need the most careful clinical studies; we need hospitals specially devoted to syphilis; we need to make its study obligatory.

The subject was further discussed by DR. ROBERT T. EDES, of Washington, and DR. JAMES NEVINS HYDE, of Chicago.

THURSDAY, SEPTEMBER 24.

The discussion on "Fibroid Processes (chronic interstitial inflammations, scleroses), their Pathology, and Etiology, with especial reference to the Influence of Diathesis and Heredity," was opened by DR. A. L. LOOMIS, of New York.

Fibroid processes cannot be spoken of as degenerations, for they imply an active process, productive in character. There is always a higher than normal grade of activity in those elements which develop connective tissue. The only way in which fibroid tissue can develop is from growing cellular elements. He excluded from the list of true fibrosis all conditions of simple preponderance of fibroid tissue from the atrophy of other elements. Two forms of fibrosis were described at length, the hyperplastic and the inflammatory. The first is due to diminished nutritive supply, to parenchymatous atrophy, to nuclear proliferation and to connective tissue hyperplasia. The inflammatory form is due to parenchymatous degeneration, to constitutional influences, and to local attraction by the products of tissue change, positive chemotaxis.

All those agencies which diminish the vital forces by which the cell appropriates to itself its proper elements, tend to the production of fibrosis. These agencies may be mechanical, chemical or mental. Among the causes of fibrosis may be mentioned direct stimulation of fibrous growth, all conditions including a limited degree of nutritive supply, all conditions and elements which induce perverted nutrition, either degeneration or necrosis, including mechanical forces, perverted or defective nutritive supply, and all toxic and trophic influences.

The relations between diathesis and fibroid processes were next considered. A diathesis may manifest itself by any bodily function displaying an activity out of proportion to the stimulant applied. In the fibroid diathesis, the growth of fibroid tissue is out of proportion to the amount of stimulation. Fibroid processes are not always injurious, as is seen in cases of cured tuberculosis. In seventy cases of cured tuberculosis under the observation of the writer, fifty-four presented well-marked evidences of fibrosis. Diathesis often determines the nature or prominent action which will follow any given irritant or stimulation, provided more than one is possible. It also modifies the ratio between the established process and its causes. The speaker next referred at length to the special manifestation of the fibroid process in the arteries, heart, kidney and liver.

DR. WILLIAM OSLER, of Baltimore, considered the fibroid processes under the head of degenerative, inflammatory and developmental. The degenerative were subdivided into the atrophic, the secondary degenerations, the toxic forms, as from lead, ergot, syphilis, the scleroses associated with similar changes in the smaller arteries and capillaries. The degenerative form includes the greatest number.

The inflammatory form was subdivided into the secondary forms, in consequence of reactive inflammation following hæmorrhage, tumors, foreign bodies, abscess and trauma; the scleroses which follow primary encephalitis or myelitis.

The following questions were suggested for consideration:

1. What is the relation of vascular change to the degenerative scleroses? How far histologically are they mesodermal or ectodermal; or are they mixed, containing both neurogliar and collacenous connective tissue?

2. The lobar scleroses of children. What is the nature of the primary affection? Is it inflammatory, an encephalitis or meningo-encephalitis; or is the essential lesion in the vessels?

3. Developmental. Can we recognize a purely ectodermal form?

DR. CHARLES L. DANA, of New York, referred to the chronic fibroid processes of the spinal cord. He classed these into, first, primary degenerative; second, secondary degenerative; and third, reparative and inflammatory. The first includes locomotor ataxia, lateral scleroses, combined scleroses, progressive muscular atrophy and amyotrophic scleroses. These scleroses are not inflammatory, but due to the destruction primarily of cells and fibres. The causes of this degeneration were either toxic substances, or disturbance of nutritive equilibrium by infections, vascular strain or imperfect nutritive supply. They are not related to any special diathesis.

The secondary fibroid processes, so-called, have been shown by French pathologists to be probably in great extent neurogliar proliferations or gliosis, not a fibrosis.

The inflammatory scleroses, including chronic myelitis, diffused myelitis and transverse myelitis, are mixed processes composed of a simple necrotic process, inflammatory processes and secondary degenerations.

DR. WILLIAM COUNCILMAN, of Baltimore, referred to the fibroid process as found in the liver, giving the results of investigations made in the Johns Hopkins Hospital. He dwelt upon the fact that the first element in the fibroid process was a necrosis. The fibrosis is not the result of stimulation. The tendency to growth is always present, and as soon as the opposition is removed, it manifests itself.

The Congress then adjourned *sine die*.

American Surgical Association.

The twelfth annual meeting of the Asssociation was held in Washington, D. C., September 22, 23, 24, and 25, 1891.

TUESDAY—FIRST DAY.

The Association was called to order by the president, DR. CLAUDIUS H. MASTIN, of Mobile, Ala., who delivered the presidential address.

The next paper was read by DR. D. HAYES AGNEW, of Philadelphia, an abstract of which follows:

PRESENT STATUS OF BRAIN SURGERY BASED ON THE PRACTICE OF PHILADELPHIA SURGEONS.

What is the present position of brain surgery and what practical lessons can be deduced from a review of the recorded results in this department of surgery? The object of the author was not to glean the entire field but to confine himself to the work done by Philadelphia surgeons in trephining for epilepsy traumatic and Jacksonian intra-cranial abscess, hæmorrhage, hydrocephalus, cephalalgia, microcephalus and neoplasms.

Traumatic Epilepsy.—Fifty-seven cases were recorded. Of this number forty-one recovered from the operation, four died and of twelve the result is not given. Thirty-two experienced temporary relief, nine obtained no benefit, four passed out of observation and four were operated on too recently to permit of the result being determined, and four are reported cured. In one of the cases reported cured, the patient had been free from attacks for twenty-eight months. In two, for ten months, and in the fourth, a branch of the great occipital nerve was found imprisoned in the bone cicatrix. While the results in these cases have not been satisfactory, it by no means follows that surgery holds out no hope against epilepsy. It is not saying too much to assume that surgery is responsible for the great majority of traumatic epileptics, though this statement does not by any means criminate the surgeon of an early day. Whenever the profession can accept the doctrine that all depressed fractures, however slight the depression, and entirely irrespective of pressure symptoms, are proper subjects for trephining, then will traumatic epilepsy largely disappear from the list of surgical diseases. It is not improbable in view of the greatly diminished risk of trephining, that the operation will be extended even to cases of simple fracture or fissure of the skull.

Jacksonian Epilepsy.—The table contains fourteen cases. In all the discharging centre was removed. Nine recovered and four died. Of those recovering, three had less frequent and less violent attacks. One realized slight benefit; one disappeared shortly after operation, and in two no benefit was observed. One is reported as cured, and in that case the operation was done during the present year.

Abscess.—Eighteen cases of this nature have been collected. Six had had fracture of the skull; two had syphilitic necrosis. In one a foreign body had entered the brain; in nine the abscess was due to middle ear disease and in two there had been a severe blow without fracture of the skull. All the patients died within less than fourteen days.

Five cases of trephining for intra-cranial traumatic hæmorrhage are recorded. In each instance the symptoms necessitating operation developed

within twelve hours after the reception of the injury. Four of the five cases recovered not only from the operation, but with the restoration of the suspended functions.

Of trephining for acute and chronic hydrocephalus, five cases are reported. All the cases died, one living to the forty-fifth day. As hydrocephalus is usually due to tubercular disease or to morbid growth, it is difficult to understand on what ground such operations are undertaken.

Cephalalgia.—Five cases are given in each of which the focus of pain was referred to the neighborhood of a scar on the scalp. In four of the cases complete relief was afforded.

Trephining for Microcephalus.—Seven cases are reported, of which four died and three recovered from the operation. One of the deaths, however, was due to scarlet fever occurring shortly after the operation. The result in the successful cases is reported as "moderate improvement." From the results obtained from the education of idiots, the author thought it wiser to relegate these unfortunates to special training schools rather than to the trephine and rongeur. The debatable cases would be those accompanied with athetosis, in which condition some improvement might be obtained.

Brain Tumors.—Only four operations for brain tumors have been done by Philadelphia surgeons. In one the growth was a fibroma weighing four ounces. The operation was done by Dr. Keen, December 15th, 1887, since which time the patient has had only six epileptic seizures. In the second case done by the same operator the tumor was in the occipital lobe and not removable. The patient died the following day from shock and hæmorrhage. In the third case no tumor was found, and in the fourth a cyst occupying the cuneus was found and emptied. The patient died in thirty-six hours and at the autopsy a large sarcoma was found occupying the tempora sphenoidal lobe.

The deductions presented by the author are as follows:

1. That all fractures of the skull attended with depression, however slight, and entirely irrespective of symptoms, should in view of the late after effects be subjected to the trephine.

2. That trephining for traumatic epilepsy promises only palliation at best.

3. That trephining for Jacksonian epilepsy is to be regarded as only affording temporary benefit.

4. That trephining for abscess in view of the fact that all such cases left alone almost invariably terminate fatally is entirely proper, and that the earlier such operation is done the better.

5. That trephining for intracranial traumatic hæmorrhage is both an imperative and highly promising operation.

6. That, medical measures having failed, trephining for cephalalgia, or traumatic epilepsy, should be undertaken with every prospect of success.

7. That trephining for hydrocephalus is a useless operation.

8. That trephining for microcephalus, independent of athetosis, confers no credit upon surgery.

9. That it is more than probable as our observations multiply, the sphere of the trephine as a preliminary for the removal of brain tumors will be lessened rather than be amplified.

DR. JOHN CHIENE, of Edinburgh, did not take the same depressing view in regard to traumatic epilepsy. He referred to three cases in which decided benefit had followed operation. He agreed fully with what had been said in regard to operation in depressed fracture whether symptoms be present. As regards methods, he spoke of simple measures for locating the fissure of Rolando. The upper extremity may be located by means of a piece of string being one-half inch behind the middle. The angle may be secured by folding a square piece of paper into four, around one of the angles. Three of these parts will give the proper angle. The purification of the scalp is a difficult matter, but may be accomplished by shaving and soaking with carbolic lotion for three days. For opening the skull he advised, as safer than the trephine, the gouge and mallet. For enlarging the opening, the gouge-forceps fill a useful purpose. For puncturing the dura and the brain, he uses a Graefe knife. Hæmorrhage from the brain may be checked by plugging with a match; bleeding from the brain, by hot water. Stress was laid upon the necessity of constant watching of brain cases, and illustrative cases cited. In one case of supposed injury to the head (but which later proved to be a case of apoplexy), in which the patient was in a dying condition, great improvement, eventuating in practical recovery, followed trephining.

DR. W. W. KEEN held that every case of depressed fracture should be operated upon, even in young children. A blow upon the head not sufficient to cause fracture may produce laceration of the dura or of the cortex. In regard to linear fracture, however, he was disposed not to accept the view that operation should be performed. In regard to tapping of the ventricles, he thought that further experience and an improved technique would lead to better results. In epilepsy he suggested the use of the bromides after operation had been done. In many cases of brain tumor, where there is no hope of removing the growth, great comfort may be afforded the patient by removal of bone.

DR. CHARLES B. NANCREDE, Ann Arbor, reported cases in which cure had followed operation for traumatic epilepsy. In one the cure

was of ten years' duration. Often cases that are reported as failures soon after the operation prove to be cures when followed for a longer time. The operation removes only one of the elements that is causing the epilepsy. In speaking of these operations, he stated that hæmorrhage from the skull could be checked by forcing in the diplœ. In regard to simple fissured fracture, he asked how the diagnosis could be made.

DR. ROSWELL PARK, Buffalo, differed from the author as regards the results of operations for epilepsy. He had himself had cases in which decided benefit was afforded. In order to determine the effect, time must elapse, so that the epileptic habit may disappear. The operation removes the anatomical cause, but ordinary therapeutic measures are needed to counteract the secondary conditions. Reference was also made to the relief afforded in brain tumors, even where the removal of the growth was not contemplated. He reported two cases of craniotomy for microcephalus in which benefit had followed.

DR. H. C. WOOD, Philadelphia, thought that we should wait before coming to any conclusions as to the result of treatment, either medicinal or surgical. He referred to one case in which, under medicinal treatment, the attacks remained absent for seven years, and then returned. He advised that in these cases, before the contemplated operation was performed, a mock operation should be done, and the effect noted. He cited cases in which such measures had been followed by benefit.

DR. J. J. PUTNAM, Boston, thought that a simple, smooth, depressed fracture would not be likely to cause any symptoms. The irritation from a sharp spicule of bone probably will cause irritation. Probably the most important element in the causation of trouble is the results of the original injury to the cortex. The interstitial changes in the cortex take the form of sclerosis, and it seems *a priori* doubtful that removal of the bone would materially affect it. The operation may not prove indifferent, for the cicatrization of the incised may lead to harm.

MR. THOMAS BRYANT, London, had been much struck with the emphasis with which Professor Agnew had insisted upon the treatment to be followed in depressed fracture. As a practical rule, he was disposed to agree with him; but there are certain exceptions. He did not think it wise to encourage practitioners to trephine and elevate every case of depressed fracture. He could recall many cases of depressed fracture, followed for years, in which no symptoms followed. Depression of the lateral aspects of the skull are not so apt to be followed by symptoms as depression of the vault of the skull. From these remarks, he said, it would naturally follow that he disagreed with the observation that in every case of fissure of the skull operation should be done. He wished Dr. Agnew had gone more thoroughly into the reason for this statement. If there had been no brain symptoms, although the blow may have been sufficient to cause fracture, it would not be wise to insist that we should at once proceed to explore to see if there is fracture. It is better to wait and watch for symptoms, being ready to operate as soon as there is a suggestion of something wrong. Although the risk of exploratory operation may be slight, yet it must be admitted that it is attended with some danger.

DR. D. HAYES AGNEW, in traumatic epilepsy, did not condemn operation, but curative results should not be expected from it. Its result is only one of amelioration. He could not withdraw his statement made in the paper, for in many of the cases of traumatic epilepsy there has been no history of unconsciousness or other symptom. There has been a blow on the head, and many years later epilepsy has appeared. It is impossible to determine the condition of the internal table of the skull by inspection of the external table. He had seen a simple crack in the skull, with the internal plate forced downwards some distance.

A paper on "Resection of the Wrist," by DR. RAFAEL LAVISTA, of Mexico City, Mexico, was presented and read by title.

Report of a committee on the

RESULTS OF TREATMENT OF SIMPLE FRACTURE OF THE SHAFT OF THE FEMUR,

Read by STEPHEN SMITH, M.D , of New York.

At the meeting of the American Surgical Association, held May 15, 1890, the following preamble and resolution was adopted :

WHEREAS, in the treatment of fractures of the shaft of the femur, the question often arises as to what is a satisfactory result in a given case; therefore,

Resolved, That a committee be appointed by the President, to report at the next meeting of the Association, what, in their judgment, under the methods of treatment, should be considered as satisfactory results.

The following committee was appointed : Dr. Stephen Smith, New York; Dr. D. Hayes Agnew, Philadelphia; Dr. David W. Cheever, Boston; Dr. D. W. Yandell, Louisville; Dr. Chas. T. Parkes, Chicago; Dr. P. S. Conner, Cincinnati; Dr. Charles B. Nancrede, of Ann Arbor, and Dr. Hunter McGuire, Richmond, Va.

The question referred to your committee has an important bearing upon the jurisprudence of surgical practice. One of the most frequent causes of prosecution of surgeons is the alleged mal-treatment of fractures of the femur.

The following circular was sent by the committee to the members :

"What should be considered as a satisfactory result (other than perfect union) in the treatment of a simple fracture of the shaft of the femur ?"

The committee has reviewed the several questions raised and endeavored to secure a common ground on which the Association can take its position, and on which members can individually stand before the courts.

1. Bony union: The necessity of firm bony union does not admit of discussion. The amount of callous should not be taken as a criterion of the success of treatment.

2. Relation of long axis of the fragments: While it is the aim of the surgeon to restore the normal relation of the long axis of the fragments, yet it is generally impossible to secure exact apposition of the fractured surfaces, nor can the normal long axial line be restored with mathematical precision.

3. Correspondence of the anterior surfaces of the fragments: On this depends the position of the foot. The result of treatment, to be satisfactory, requires that the anterior surface be in the same planes.

4. Length of limb: This was formerly regarded as the test of success of treatment. The records of the past show that shortening was the universal rule. The discovery of the natural discrepancy in the length of the lower limbs has considerably modified our estimate of this test. Ninety per cent. of healthy, uninjured persons have lower limbs of unequal lengths. In thirty-five and eight-tenths per cent. the right limb is the longer; in fifty-four and three-tenths per cent. the left is the longer. If the amount of shortening does not exceed the average natural difference in the length of the limbs—viz., about one-half an inch—the result will be in accordance with the laws of nature in the conformation of the lower extremities. If the shortening does not exceed the extreme limit of difference in the lengths of the natural limbs—viz., about one inch—the result should be considered satisfactory. An unsatisfactory result as regards shortening exists only when the amount of shortening exceeds one inch.

5. Lameness: This is a symptom of variable importance. Some will have a limp with one-fourth inch shortening, while others will not limp with one-half or one inch shortening. In many cases the limp disappears with time, or if it continues it is the result of careless habits of the patient.

6. Restoration of function: Essential to the function of the femur is strength of the femur at the seat of fracture, free and unimpeded action of the muscles, and proper motion of the knee joint. The determination of the degree of restoration of function cannot be made for at least one year after the cessation of treatment.

7. Conditional results: There is a class of cases in which our estimate of results must be based upon a careful study of the special circumstances connected with the treatment of each case. Results widely different from those already given must be regarded as satisfactory, when we consider the circumstances under which the treatment is necessarily pursued. The treatment may have been conducted under circumstances in which it was impossible to secure proper apparatus, or the injury may have involved other parts so as to prevent the patient from taking the necessary position, or the patient may have suffered from delirium or other malady.

The following conclusions were presented:

A satisfactory result has been obtained in the treatment of fracture of the shaft of the femur when—

1. Firm bony union exists.

2. The long axis of the lower fragment is either directly continuous with that of the upper fragment, or the axes are on nearly parallel lines, thus preventing angular deformity.

3. The anterior surface of the lower fragment maintains nearly its normal relation to the plane of the upper fragment, thus preventing undue deviation of the foot from its normal position.

4. The length of the limb is either exactly equal to that of its fellow, or the degree of shortening falls within the limits found to exist in ninety per cent. of healthy limbs, viz., from one-eighth of an inch to one inch.

5. Lameness, if present, is not due to more than one inch of shortening.

6. The conditions attending the treatment prevent other results than those obtained. Adjourned.

WEDNESDAY MORNING.

DR. A. G. GERSTER, of New York, read a paper on

ASEPTIC AND ANTISEPTIC DETAILS IN SURGERY.

Personal cleanliness and cleansing of the field of operation are to be accomplished by mechanical measures, rather than by disinfectants. The dirt and oily matter of the skin is removed by emollient potash soap and stiff brush. This is followed by the germicidal lotion. The hands of the surgeon may be sterilized in the following manner: The nails are trimmed short, the hands scrubbed with soap and brush in hot water for one minute. The nails are then cleaned, and the hands immersed in strong alcohol, and then washed in 1:1,000 corrosive sublimate solution. Brushes require careful attention. They may be sterilized by boiling for five minutes in water containing 1 per cent. of washing soda. They should be kept in 1:1,000 bichloride solution.

Instruments are sterilized by boiling for five minutes in soda solution, in a covered vessel. The addition of the soda prevents formation of rust.

Dressings are rendered absorbent and sterilized by steam. Strong antiseptic agents in dressings are objectionable from their action on the spine.

Dressings may also be sterilized by boiling in soda or potash lye.

The use of Florida sponges was recommended, as, owing to their cheapness, they can be used once and then thrown away. Boiling of sponges is to be condemned. Sponges are best prepared by heating, followed by immersion in dilute muriatic acid. Acid is removed by washing, then immersed in water for two days to permit the spores to germinate. Each sponge is then kneaded in hot water for one minute with potash or soft soap. They are then placed in 5 per cent. carbolic acid solution for twenty-four hours. As a substitute for the large flat sponge used in laparotomy, he recommended the use of pads of absorbent gauze.

In operating few instruments, sponges and assistants should be employed. The dissection should be clean, the tissues being cut rather than torn. Irrigation should not be employed except when special indications present. In the abdominal cavity irrigation was condemned. When the peritoneal cavity is contaminated by pus, etc., simple wiping away of the matter is sufficient.

In perfectly aseptic operations, no drainage is required. Iodoform gauze can often be substituted for the use of tubes. Drainage by tubes is required where there is progressive suppuration.

In combating septic morbid processes, mechanical measures, such as incision, drainage and irrigation, are of more importance than chemical measures.

Dr. J. Collins Warren, Boston, described the details of operative surgery as practiced in the Boston city hospital, the Massachusetts general hospital and the children's hospital.

Dr. J. William White, Philadelphia, thought that the time had not yet arrived when the use of antiseptics could be dispensed with. He preferred an antiseptic dressing in all cases except where the wound is absolutely sterile, and where no discharge is to be expected. While in a general way he agreed as to the value of mechanical measures in cleansing the skin, he saw no good reason for throwing aside entirely the use of the weaker chemical solutions. There are so many cases in which we cannot be sure that the wound is aseptic, antiseptic dressings become of importance. He had tried the gauze substitute for sponges in abdominal work, but found it objectionable from the fact that when the gauze remains long in contact with the intestines, threads of the gauze adhere to the intestine.

Dr. Joseph Ransohoff, Cincinnati, said that in some cases it was absolutely impossible to render the part aseptic, and cited cases illustrating this point. In cases where it becomes clear that the wound is infected, he removes the dressings, and soaks the part in hot water. He had discarded the use of sponges altogether. In the majority of cases he employs the aseptic dressing, but could see no harm in the use of antiseptic dressings. Dressings, etc., in private practice may well be sterilized by heating in the oven. He thought that tight closing of the wound should be practiced oftener than it now is. Drainage is rarely used except in wounds already septic. He often uses catgut for drainage. In the septic cases he thought that probably the surgeon was often responsible for the infection of the wound. By clean incisions, cutting far away from the disease, and by not using the sharp spoon too freely, infection of the wound in suppurating cases can often be prevented.

Dr. E. M. Moore, Rochester, asked what objection was there to irrigation. In amputations, for instance, irrigation with 1 : 1000 bichloride solution affords a ready means of removing clots, etc. The clots are removed, and the wound can be left in a dry state. If this irrigation does no harm, why not use it? Dr. Gerster had condemned it, but he had not given his reasons for such condemnation. In certain cases of abdominal section, especially where there was oozing of blood, the use of hot irrigations of aseptic water were of great service.

Dr. Gerster, in concluding, said that he did not condemn antiseptic methods. He employed both methods. In its proper place, asepticism is infinitely superior to anti-septicism, but the cases must be properly selected. Teachers must be careful not to go too far in advance of the rest of the profession. Those who have not learned the detail should be warned to stick to the older methods, gradually approaching the higher.

Dr. J. William White, of Philadelphia, read a paper on

THE SURGERY OF THE SPINE.

The conditions discussed were: Congenital deformities; tuberculosis of the spine; neoplasms and traumatisms. Under the first head, spina bifida is the only condition requiring consideration. In this, injection by an iodo-glycerine solution offers the greatest prospect of ultimate recovery with the least immediate danger. In tuberculosis of the spine the indications for interference are the evacuation of pus, removal of a sequestrum or of a focus of carious bone, and relief of the cord from pressure. There are records of fourteen operations upon the bodies of vertebrae for abscess, with eight cures, five cases improved, and one death, which had no relation to the operation. There have been forty cases of operation on the spine for the relief of pressure. In twenty-two there was either improvement or cure. The effect of suspension in the treatment of Pott's paralysis has been so favorable that it should occupy a prominent position.

Conclusions in regard to operative treatment

of spinal tuberculosis with symptoms of pressure on the cord were:

1. The paralysis in Pott's disease is not, as a rule, due to a transverse myelitis or hopeless degeneration, and is not usually due to the pressure of the carious or displaced vertibræ, but is, in the majority of cases, the result of an external pachymeningitis which results in the formation of an extra-dural connective tissue tumor.

2. Speaking generally, a favorable prognosis is to be given, especially in children, in cases of Pott's paralysis in which the abscess, if any exists, can be evacuated; the treatment by extension, and with plaster jacket, can be employed and the patient can be put under the most favorable hygienic conditions.

3. In cases in which all this has been tried unsuccessfully, or in those in which the disease is slowly but steadily progressing to an unfavorable termination, where with more or less complete loss of motion and sensation below the level of the lesion there are incontinence of urine and fæces and the development of bed-sores, and especially when acute symptoms threaten life, resection becomes entirely justifiable.

4. Operation having been decided upon for any or all of the above reasons, the prognosis will be favorable in direct proportion to the youth and strength of the patient, the absence of generalized tuberculosis, and the nearness of the lesion to the base of the sign.

5. When the tuberculous process affects the arches and there is paraplegia, we may sometimes operate, hoping not only to free the cord, but at the same time remove the focus of disease. This double indication may also be fulfilled in those cases where, without bony disease, there is posterior pachymeningitis or a tuberculoma occupying the canal.

6. If the lesion of the bodies of the vertebræ is in the lumbar region at a point where these bodies are accessible, it might be possible in certain cases to expose the cord from the back, by removal of the laminæ, with the object not only of removing pressure but of reaching and taking away the diseased bone and tubercular granulation.

7. In tuberculosis of the body of a vertebræ and compression of the cord by anterior pachymeningitis we can fulfil only one indication—liberate the cord from the pressure. We should operate only in grave cases when acute compression, the appearance of respiratory complications, the rapid development of degenerative processes force us to interfere, or where the course of a chronic case is steadily toward a fatal termination, although no advanced visceral tuberculous lesions are present.

In regard to neoplasms it was said that every case of focal spinal lesion thought to depend on a tumor, and not distinctly a malignant and generalized disease, should be regarded as amenable to operative interference, no matter how marked the symptoms of pressure may be, nor how long continued.

Traumatism.—The indications and contraindications for trephining in spinal fractures are based on the following points:

1. The nature of the vertebral lesion and the nature and extent of the medullary lesion.

2. The time which has elapsed since the traumatism.

3. The regional level of the medullary lesion.

The following conclusions were presented:

1. Some objection urged against operative interference in spinal traumatism, *i.e.*, hæmorrhage, frequency of absolute destruction of the cord, pressure from inaccessible fragments of bone, etc., have been shown to be unsupported by clinical facts; others were largely due to a well-founded dread of *a*, the shock, in those cases operated on in pre-anæsthetic times; and *b*, consecutive inflammation, suppuration and pyæmia in pre-antiseptic periods.

2. Some results of recent operative interference in properly selected cases of fracture of the spine are encouraging, and should lead to the more frequent employment of resection of the posterior arches and laminæ; *a*, in all cases in which depression of those portions, either from fracture or dislocation, is obvious; *b*, in some cases in which, after fracture, rapidly progressive degenerative changes manifest themselves; *c*, in all cases in which there is compression of the cauda equina from any cause, whether from anterior or posterior fracture, or from cicatricial tissue; *d*, in the presence of characteristic symptoms of spinal hæmorrhage, extra- or intra-medullary.

3. Operation is contraindicated by a history of such severe crushing force as would be likely to cause disorganization of the cord. The question which will remain in doubt previous to operation will usually be that of the extent of damage done to the cord, and the possibility of its taking on a reparative action. As to this, the safest rule is that which has been formulated by Lauenstein, namely, that if after the lapse of six or ten weeks there is incontinence of urine or incontinence of fæces, and especially if there is also the development and spreading of bed sores, but little is to be hoped for from the unaided efforts of nature. If, however, these symptoms are absent, and if there be the least improvement, it will be proper for the surgeon to delay operative interference still longer.

DR. H. H. MUDD, of St. Louis, dwelt upon the importance of remembering the liability to severe shock in these spinal operations. He reported three cases of bullet wounds of the spinal column, one of which ended fatally.

DR. JOHN B. ROBERTS, of Philadelphia, insisted that injuries and diseases of the spine, of a

surgical kind, should be treated as we treat injuries of the cranial cavity. Cases of Pott's disease with angular curvature have been referred to, but sufficient stress has not been laid upon the fact that many of these cases with motor paralysis improve under ordinary remedies, the inflammatory exudation being absorbed. In traumatism of the spine, we should explore the spine as we should explore the brain. In severe injuries with fracture, spiculæ of bone are often driven down on the canal.

DR. J. J. PUTNAM, of Boston, thought that the dangers of inflammation had not been sufficiently dwelt upon. Some cases of spinal injury, in from one to four years, show some improvement. In such cases, an operation may add to the improvement.

DR. JAMES MCCANN reported two cases of spinal injury in which operation had been performed. In one death followed. In the other there was great improvement.

DR. N. SENN, of Chicago, read a paper on

THE TREATMENT OF TUBERCULOSIS OF BONES AND JOINTS BY PARENCHYMATOUS AND INTRA-ARTICULAR INJECTIONS.

The following conclusions were presented:

1. Parenchymatous and intra-articular injections of safe anti-bacillary substances are indicated in all subcutaneous tubercular lesions of bones and joints accessible to this treatment.

2. Of all substances so far employed in this method of treatment, iodoform has yielded the best results.

3. The curative effect of iodoform in the treatment of local tuberculosis is due to its anti-bacillary effect, and its stimulating action on the healthy tissue adjacent to the tubercular product.

4. A 10 per cent. emulsion in glycerine or pure olive oil is the best form in which this remedy should be administered subcutaneously.

5. The ethereal solution should never be employed, as it is liable to cause necrosis of the tissues overlying the abscess, or iodoform intoxication.

6. Tubercular abscesses and joints containing synovial fluid or tubercular pus should always be washed out thoroughly with a three to five per cent. solution of boracic acid before the injection is made.

7. Injections should be made at intervals of one or two weeks, and their use persisted in until the indications point to the cessation of tubercular inflammation and the substitution for it of a satisfactory process of repair, or until the result of this treatment has shown its inefficacy and indications present themselves of the necessity of resorting to operative interference.

8. If the treatment promises to be successful, symptoms pointing to improvement manifest themselves not later than after the second or third injection.

9. In tubercular empyema of joints and tubercular abscess, gradual diminution of the contents of the joints or abscesses at each successive tapping and lessening of the solid contents of the fluid and increase of its viscidity, are the conditions which indicate unerringly that the injections are proving useful, and that in all probability a cure will result from their further use.

10. Moderate use of limb is compatible with this method of treatment, provided the disease has not resulted in deformities which would be aggravated by further use of the limb. In such cases, correction of the deformity should be postponed until the primary joint affection has been cured by the injections.

11. Parachymentous and intra-articular medications, with anti-bacillary material, has yielded the best results in tubercular spondylitis, attended by abscess formation and tuberculosis of the knee and wrist joints.

12. This treatment may prove successful in primary osseous tuberculosis, followed by involvement of the joint, provided the osseous foci are small.

13. Extensive sequestrums of articular ends, with secondary tubercular synovitis, always necessitates resection, but preliminary treatment by iodoform injections into the affected joints constitutes a valuable preparatory treatment to the operation, and adds to the certainty of a favorable result.

14. In open tubercular affections of joints, incision, scraping, disinfection, iodoformization, iodoform gauze tampon, suturing and subsequent injections of iodoform emulsion is advised, and yields excellent results, and should be employed in all cases in which a more formidable operation can be avoided.

15. Balsam of Peru ranks next to iodoform in the treatment of tubercular affections of bones and joints, and if the latter remedy, for any reason, can not be employed, or has failed in affecting the desired result, it should be given a fair trial, if operative treatment is not urgently indicated.

(*To be concluded.*)

NECROLOGY.

David Humphreys Storer, M.D., LL.D. and Ex-President.

This estimable and honored physician and scientist has passed away, *ad majores*, ripe in years and character. He was, with one exception, the senior surviving president of our Association. He presided in 1866, being the immediate successor in office of the Nestor, Davis, who held the chair at the second Boston meeting, in 1865. The convention over which Dr. Storer presided was held at Baltimore, the first southern city to entertain our organization after the signature of peace and the

healing up of internecine wounds had begun in good earnest. Dr. Storer was born at Portland, Maine, March 26, 1804, and in that city received his early training. He was an alumnus of Bowdoin College, of the class of 1822, graduating at the early age of eighteen. In 1876 that same institution conferred upon him a doctorate in laws. He studied medicine with Dr. John C. Warren, of Boston, obtaining his medical degree from the Harvard School in 1825. Five years later he, with Drs. Oliver Wendell Holmes, Jacob Bigelow and one or two others, founded the private medical school which was known as the Tremont Street School, and which was a pioneer in that kind of systematic tuition and drill of students. This school was a gain to the cause of medical education in that vicinity, and was one of the incentives to the subsequent establishment of a summer term in the medical department of Harvard. He likewise assisted in the formation of the Society of Natural History, and for years gave to it freely of his evening hours, and to the subjects of natural history much interest and research. To the department of ichthyology, especially, he contributed some valuable memoirs. In 1837 his scientific repute was such that he received a state appointment to report upon the zoology and herpetology pertinent to the then closing State survey. In 1845 he contributed to the New Haven meeting of American Naturalists his standard synopsis of the fishes of North America; and later he brought out his illustrated quarto on the "Fishes of Massachusetts." He became a visiting physician to the general hospital of the State in 1849, served for nearly a decade, and was then promoted to a consultant's position, which he retained over thirty yerrs.

His membership in the Massachusetts Medical Society dates from 1829; and he was the Senior Fellow residing in Boston at the time of his decease. He delivered the annual discourse before the Society in 1851, taking for his subject "Medical Jurisprudence;" and this was the same subject-matter that a few years later made a part of his chair in the Harvard Medical School. He was in his fiftieth year when he was chosen to succeed Dr. Walter Channing as professor of the theory and practice of obstetrics and medical jurisprudence. This chair was filled by him acceptably and eloquently from 1854 to 1868. His lectures were seldom shirked by the students, but on the contrary they added popularity to the college. He was dean of the school for nine years. In 1868 his active participation in college duties ceased by resignation. His interest in the Association was early enlisted, and he attended a majority of the meetings in the first decade of its history, being made one of the vice-presidents in 1855. He was especially prominent in the proceedings at the Charleston Convention when the question of Dr. Ramsey's obstetrical statistics was made a cover for an attack upon the Association. He was at that time the chairman of the Committee on Obstetrics, the branch of medicine which, with the diseases of women, engaged his special attention. He was one of the few who were made honorary members of the American Gynecological Society, at its foundation in 1876. He was a forcible and clear speaker in the debates of his chosen societies, and he had a quick intuition as against measures and methods that opposed the progress and honor of the profession, but of late years he has been little known in the medico-literary world. Fifty years ago he was prominent in a committee on library in the State Medical Society, and some of the results of his committee's labors rest among the 10,000 medical volumes on the shelves of the Public Library of Boston. Within the past two years, however, his friends and former students have made it possible for the Medical Library Association of that city to place upon its walls an exceptionally fine portrait of this lover of books, of natural science and of the healing art. When he was seventy-nine years old he was troubled with vesical calculus, and was operated upon successfully by the late Dr. H. J. Bigelow. His retirement from professional activity had been gradually progressing before that operation, but after that it became more decisive. This retirement, however, left him with a mind well furnished for life's decline, and he sustained his long-time reputation for cordiality and geniality and a lively sympathy with the junior members of the profession. The date of his death was September 10.

BOOK REVIEWS.

REGIONAL ANATOMY IN ITS RELATION TO MEDICINE AND SURGERY. Illustrated from photographs taken by the author of his own dissections, expressly designed and prepared for this work, and colored by him, after Nature. By GEORGE MCCLELLAN, M.D. Vol. I. Imp. 4to. Pp. 431. Philadelphia: J. B. Lippincott & Co., 1891.

As the title indicates, the book is original in its design and execution. This work covers not only the matter usually comprised in ordinary works on surgical anatomy, but as well the surface anatomy, or "land-marks." Surface anatomy is not only a necessary study for the artist, but for the surgeon, especially in these days of the philotomists, when every swelling must be "explored," and the unfortunate abdomen slashed open whenever there is any unusual change in its contour. The more knowledge of surface anatomy, the less "exploratory" slashing. The more knowledge of surface anatomy, the more accurate the diagnoses in injuries of the joints, and the fewer the litigants in malpractice suits. Prof. McClellen, himself a teacher of anatomy in the Pennsylvania Academy of Fine Arts, as well as in a medical school, has given the most complete exposition of the subject.

The illustrations are accurate and handsomely executed, the coloring is natural, and the book is one of which all American medical men may well be proud, and the author has in this work added new laurels to a line already distinguished in the annals of American medical literature.

The publishers have done their part well; the paper is good, the typography excellent, and the whole make-up is highly creditable to the house.

There are many books which the general practitioner and surgeon can better afford to spare than this one.

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This is obtainable, at any time, by a member of any State or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Richard J. Dunglison, Lock Box 1274, Philadelphia, Pa., sending him a certificate or statement that he is in good standing in his own Society, signed by the President and Secretary of said Society, with five dollars for annual dues. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership. On receipt of the above amount the weekly JOURNAL of the Association will be forwarded regularly.

SATURDAY, OCTOBER 3, 1891.

CREATIN IN TUBERCULOSIS.

In a report to *The Times and Register*, Sept. 26, 1891, Prof. SAMUEL G. DIXON, of Philadelphia, gives the results obtained by injections of creatin in tuberculous animals. His own experiments were made on tuberculous and healthy rabbits and guinea-pigs, the results being as satisfactory as could be expected with these particular animals. At his request, W. L. ZUILL, M.D., Professor of Veterinary Surgery in the University of Pennsylvania, made experiments on healthy and tuberculous cows. Prof. ZUILL reports as follows:

TO PROFESSOR SAMUEL G. DIXON, M.D.:

Dear Doctor:—I hereby submit to you the clinical results obtained from the subcutaneous injection of creatin in tuberculous cattle. The experiments were made in accordance with our pre-arranged plan, and have extended over the last two months. The results obtained in these experiments more than fulfill my utmost expectations, and are in every respect identical with those which I have obtained with tuberculin. The physiological action of creatin in tuberculous cows is so exact and identical with tuberculin that it is impossible to recognize a clinical difference. Its influence upon circulation and respiration is well marked in animals suffering with miliary tuberculosis of the lungs, but large doses of the drug do not react upon these organs should the disease be confined to the other tissues of the body.

The action of creatin upon tuberculous tissues is intensely energetic, causing rapid necrosis of this tissue, giving it the appearance of having undergone a cystic degeneration. The cheesy degeneration of tuberculous tissue seemingly disappears, and its place is taken by necrotic cavities filled with serum, in which float threads and masses of the tuberculous structure more or less large.

August 13.—Experiment No. 1 was made with one-twentieth of a grain of creatin in a tuberculous cow, with no well-marked reaction.

August 27.—Experiment No. 2 was made with one-sixth of a grain of creatin in a tuberculous cow, which caused an elevation of temperature from one hundred and one to one hundred and four and one-fifth degrees F.

September 9.—Experiment No. 3 was made with one-half of a grain of creatin in a tuberculous cow, and caused an elevation of temperature from one hundred and one and one-fifth degrees to one hundred and three and four-fifths degrees F.

September 21.—Experiment No 4 was made with 1 gr. of creatin in a tuberculous cow, and caused a reaction in temperature from one hundred and two and one-fifth degrees to one hundred and five and three-fifths degrees F.

September 4.—Check experiment No. 2 was made with ⅙ of a gr. of creatin in a healthy cow, and no reaction could be observed.

September 9.—Check experiment No. 3 was made with ½ of a gr. of creatin in a healthy cow, and no reaction could be observed.

September 24.—Check experiment No. 4 was made with 1 gr. of creatin in a healthy cow, and no reaction could be observed. Respectfully, W. L. ZUILL.

It is to be borne in mind that the normal temperature of the cow is from 101° to 102½° F.

Prof. DIXON has on hand a series of experiments with other members of the amide group, viz.: allantoin, glycosin, tyrosin, creatinin, taurin, cystin, etc.

WE CONGRATULATE the readers of THE JOURNAL upon the large amount of valuable original matter presented this week. In addition to the usual amount of Section work of the Association, our readers have before them a very full abstract of the proceedings of the general session of the Congress of American Physicians and Surgeons, held last week in Washington, as well as a partial report of the proceedings of the American Surgical Association.

THE DOCTORS OF NORTHERN OHIO will gather at Mansfield, November 5–7, for at that time and place, the three Societies of Northern Ohio, viz.: the Northwestern Ohio Medical Society, the North Central Ohio Medical Society, and the Northeastern Ohio Medical Society, hold a union meeting.

On the evening of November 5, the Hon. John Sherman will give a reception in honor of the Association, and the next evening the Hon. M. D. Harter will give a reception. The Committee of Arrangements consists of Drs. R. Harvey Reed, J. W. Craig and Geo. Mitchell, all of Mansfield.

DR. FRANK W. REILLY, of Chicago, has been appointed Secretary of the State Board of Health

of Illinois, vice Dr. John H. Rauch, resigned. In accepting the resignation of Dr. Rauch the Board passed complimentary resolutions, warmly eulogizing him, which are this week crowded out on account of the great pressure upon our columns.

His successor, Dr. Reilly, was for many years a surgeon in the Marine-Hospital Service, and afterwards a well-known writer for the daily press. He was Dr. Rauch's assistant for some months, and for the last four years has been the managing editor of the *Chicago Daily News*.

Bringing a trained pen to the service of the Board, his success as Secretary is well assured.

MISCELLANY.

ILLINOIS ARMY AND NAVY MEDICAL ASSOCIATION.—The Illinois Army and Navy Medical Association was organized at Springfield, Ill., June 26, 1890, with Dr. Hosmer A. Johnson, of Chicago, as President, and Dr. John H. Rauch as Secretary. The objects of the Society are, the promotion of social intercourse, and historical and medical subjects connected with the late War. All reputable physicians now living in Illinois, whether in practice or not, who served in the Army or Navy during the late War, and all who were Surgeons, or Acting Asst. Surgeons, who were with Illinois troops, and are now non-residents of the State, are eligible to membership. At the second meeting of the Association, held in Springfield, May 18 and 19, 1891, Dr. John H. Rauch was elected President, vice Dr. Johnson, deceased, and Dr. Edward P. Bartlett, of Springfield, was elected Secretary. The Association adjourned to meet in Chicago, at the time of the unveiling of the Grant Monument. This adjourned meeting will take place at the Grand Pacific Hotel, October 7 and 8, 1891. All physicians who served in the Army or Navy, during the late War, are cordially invited to meet with us. The unveiling of the monument will take place October 7, at 2 P.M.

Reduced rates are promised by the railroads.

EDWARD P. BARTLETT, Sec'y.

AMERICAN MEDICAL ASSOCIATION—SECTION ON SURGERY.—The Chairman of the Section requests members who expect to present papers in this Section to forward the titles of their contributions as soon as possible to the secretary of the Section, F. W. MANN, M.D., Detroit, Mich. The programme is being rapidly filled, and it is the desire of the officers to make it thoroughly representative in all departments of surgical work.

MITCHELL DISTRICT MEDICAL SOCIETY.—The semi-annual meeting of the Mitchell District Medical Society will be held at Columbus, Ind., Thursday and Friday, December 17 and 18, 1891. Physicians desiring to read papers at this meeting will please forward the titles of their papers immediately. This promises to be one of the best meetings ever held by this well-known medical Society.

GEO. T. MCCOY, M.D.,
Chairman Com. of Arrangements.

ANNALES D'OCULISTIQUE.—This long-established and widely known ophthalmological journal, conducted during many years with distinguished ability by the late Professor Warlomont, has, since the death of that illustrious leader in ophthalmology, passed into the editorial hands of Drs. Valude and Sulzer, who have transferred the office of publication from Brussels to Paris.

The new management has doubled the size of the journal and promises to increase its usefulness.

Dr. George T. Stevens, of New York, the American collaborator, will report matters of ophthalmological interest from this country.

Those who are familiar with *Annales d'Oculistique* will have already observed a very marked change in the prominence given to American literature in the last two numbers.

Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from September 19, 1891, to September 25, 1891.

Asst. Surgeon Theodore F. DeWitt, U. S. A., granted leave of absence for six months, on surgeon's certificate of disability.

Asst. Surgeon Jefferson R. Kean, U. S. A., granted leave of absence for three months, on surgeon's certificate of disability.

Official List of Changes in the Medical Corps of the U. S. Navy, for the Week Ending September 26, 1891.

P. A. Surgeon E. H. Marsteller, detached from U. S. S. "Petrel," and granted one month's leave.

P. A. Surgeon O. D. Norton, detached from special duty at Naval Academy, and to the U.S. S. "Petrel."

Surgeon J. H. Hall, detached from Naval Hospital, Chelsea, Mass., and placed on waiting orders.

Surgeon G. P. Bradley, ordered to Naval Hospital, Chelsea, Mass.

Surgeon C. U. Gravatt, ordered to Naval Hospital, Brooklyn, N. Y.

P. A. Surgeon J. F. Gardner, detached from Naval Hospital, New York, and to the Naval station, New London, Conn.

Asst. Surgeon J. H. North, detached from Navy Yard, New York, and wait orders.

Asst. Surgeon Geo. A. Lung, detached from Naval Station, New London, Conn., and to the Navy Yard, New York.

Surgeon M. H. Simons, detached from the "Enterprise," and to hold himself in readiness for sea service.

Official List of Changes of Stations and Duties of Medical Officers of the U. S. Marine-Hospital Service, for the Six Weeks Ending September 19, 1891.

Surgeon George Purviance, granted leave of absence for thirty days. August 22, 1891.

Surgeon W. H. Long, granted leave of absence for twenty-two days. August 18, 1891.

Surgeon H. W. Austin, to proceed to Delaware Breakwater Quarantine Station as Inspector. August 28, 1891. Granted leave of absence for thirty days. September 3, 1891.

Surgeon J. M. Gassaway, granted leave of absence for ten days. September 19, 1891.

Surgeon G. W. Stoner, granted leave of absence for ten days. August 15, 1891.

P. A. Surgeon H. R. Carter, to proceed to Cape Charles Quarantine for temporary duty. August 27, 1891.

P. A. Surgeon W. A. Wheeler, to proceed to Cape Charles Quarantine for temporary duty. August 27, 1891.

P. A. Surgeon C. R. Banks, granted leave of absence for eleven days. September 3 and 9, 1891.

P. A. Surgeon D. A. Carmichael, leave of absence extended thirty days on account of sickness. September 10, 1891.

P. A. Surgeon A. H. Glennan, granted leave of absence for seven days. August 29, 1891.

Asst. Surgeon G. M. Guiteras, relieved from duty at San Francisco, Cal.; to proceed to New Orleans, La., for special duty. September 14, 1891.

P. A. Surgeon C. P. Wertenbaker, granted leave of absence for thirty days. September 10, 1891.

Asst. Surgeon J. C. Perry, to proceed to Evansville, Ind., for temporary duty. September 18, 1891.

Asst. Surgeon G. B. Young, granted leave of absence for eight days. August 29, 1891. To proceed to Cairo, Ill., for temporary duty. September 15, 1891.

Asst. Surgeon E. R. Houghton, to proceed to Vineyard Haven, Mass., for temporary duty. August 29, 1891. Granted leave of absence for sixty days, and permission to go abroad. September 18, 1891.

PROMOTION.

Asst. Surgeon H. T. Goodwin, commissioned as P. A. Surgeon, to date from September 24, 1891. September 18, 1891.